TOP
BEST MOCKS

COMPUTER STUDIES

Source Mr Isaboke

0714497530

From 20 Best performing Schools and Counties

Paper 1 & 2 (With Answers)

"The Bridge to Success"

CONTENT

451/1
COMPUTER STUDIES
PAPER 1
(THEORY)
TIME: 2 ½ HOURS

ALLIANCE BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provides above
2. Sign and write the date of examination in the spaces provided
3. This paper contains two section: Section A and B.

4. Answer all questions in section *A.*
5. Answer question 16 (Compulsory) and any other *THREE* questions in section *B.*
6. All answers should be written in the spaces provided in the question paper

FOR EXAMINER'S USE ONLY.

SECTION	QUESTION	CANDIDATE SCORE
A	1-15	
B	16	
	17	
	18	
	19	
	20	
TOTAL SCORE		

1. Differentiate between Core 2 Duo and Quad Core processors in terms of internal architecture (2mks)

2 (a) Explain why Gas Plasma displays are preferable to LCD monitors in entertainment and social places (1mk)

(b) State **three** advantages of LED over incandescent and fluorescent illuminating devices. (3mks)

3. Most distributions of Linux operating system are available to users under General Public Licence (GPL)

(a) Explain the meaning of GPL (1mk)

(b) State **four** examples of Linux distributions available under GPL (2mks)

4. Differentiate between compatibility and interoperability in relation to computer software and hardware. (2mks)

5. (a) Define the term "system registry" (1mk)

(b) State **three** causes of system registry failure (3mks)

6. Explain how you would unfreeze a computer running windows which has stopped responding to commands (3mks)

7. List **four** circumstances under which a user may use the Save As Command instead of the Save Command (2mks)

8. State **four** problems that may occur during printing and how to solve them. (4mks)

9. Highlight **three** Acts of Parliament or laws that govern the use of ICT in Kenya (3mks)

10. Work out the following

(a) $1110.101_2 - 101.01_2$ (2mks)

(b) Convert EFE_{16} into decimal form

11. State **four** operations you would undertake to safeguard data integrity (2mks)

12. (a) What is system implementation (1mk)

(b) State **three** activities that are done during system implementation (3mks)

13. Differentiate between a router and a gateway. (2mks)

14. Define the following terms (2mks)

(a) Teletext:

(b) Videotext: ……

15. List **three** types of job opportunities that are available in the field of computer hardware . (3mks)

SECTION B (60MKS)

Answer question 16 and any other three questions from this section

16 (a) Design a flowchart for a simple program that can be used to categorize people according to age. If the person is above or equal 18 years, output "Adult" otherwise output "Young" (8mks)

(b) What is the difference between looping and selection. (2mk)

(c) Name the stage of program development cycle when:

(i) A user guide would be written (2mks)

(ii) A programmer dry-run the code

(iii) System charts would be drawn

(iv) Staff training is done

17. A school has decided to network its computers so that it can distribute information over a local intranet. The school also intends to connect the local network to the internet.

(a) Describe three different topologies that could be used to network the computers (6mks)

(b) The various services are to be provided by servers. Briefly describe the services provided by (6mks)

(i) Print server

(ii) Internet server

(ii) Intranet server

(c) Electronic mail (E-mail) is very popular. Explain how you would prepare and send a message using e-mail. (3mks)

18. (a) Explain how you can defend your files from the following risks (8mks)

(i) Fire in the computer

(ii) Hackers

(iii) Virus attack

(iv) Disgruntled ex-employees

(b) Differentiate between private data and confidential data (4mks

(c) List **three** sources of viruses (3mks)

19. Describe the following careers in the computing field (3mks

(a) Computer Engineers

(b) Software Engineers

© Computer Technician

(d) Identify any **three** duties of an information system manager (3mks)

(c) Giving an example, mention **three** categories of places where you can advance your computer skills after sitting for your K.C.S.E (3mks)

(d) Mention any **four** formatting features used in Ms Word Application (3mks)

(e) Define the term electronic spreadsheet (1mk)

(f) Explain the following terms as used in MS Excel spread sheet package (3mks)

(i) Range

(ii) What if analysis

(iii) Automatic recalculation

20 (a) Compute the value of x in the following expressions (4mks)

(i) 24.35_{10} =

(i) $6AB_H = X_{10}$ (2mks)

(b) Using twos complements compute the following using 8 bits (6mks)

$20_{10} - 25_{10}$

(c) Write these abbreviations in full text (3mks)

(i) BCD

(ii) EBCDIC

(iii) ASCII

ALLIANCE BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

(a) Create a database in the floppy disk named BORA UNIVERSITY COLLEGE. (2mks)

(b) Create a table with the following fields using appropriate data types: Adm No, First Name, Last Name, Course, Date of Admission and Completed. Set Adm No as a Primary key .Save it as STUDENTS DETAILS
(6mks)

(c) Create a Columnar form that would be used to enter data into STUDENTS DETAILS and save it as STUDENTS DATA ENTRY.
(2mks)

(d) Use the above form to enter the following data into the database.
(6mks)

Adm No.	First name	Last name	Course	DOA	Completed
3224	John	Flora	IMIS	12/01/2010	Yes
4455	Mary	Mutua	Accounts	24/12/2009	Yes
6677	Benard	Maingi	French	15/5/2010	No
7760	David	Naja	IMIS	0./04/2010	No
2312	Evy	Danson	French	23/8/2009	Yes
6547	Joy	Kelly	IMIS	4/3/2010	No
6579	Mwangi	Sam	IMIS	18/4/2010	No

(e) Create a table named 'FEE PAYMENT' in the same database to contain Adm No, Fee Paid and Receipt No.
(5mks)

(f) Link STUDENTS DETAILS table to FEE PAYMENT table. (2mks)

(g) Enter the following details directly into the FEE PAYMENT table.
(2mks)

Adm No.	Fee paid	Receipt number
3224	12000	100
4455	30000	121
6677	30000	152
7760	25000	134
2312	30000	145
6547	23000	124
6579	30000	150

(h) Create a query to display the following details: Adm no, First name, Last name, Fee paid.
Save as FEE PAID. (5mks)

(i) Display a list showing the Last name and the Fee balance for all students who owe the college over 10,000/= given that the total fees for each course is 30,000. Save as SEND HOME.
(5mks)

(j) Certificates are to be given only those who have completed their course and have paid the full amount. Create a query, having the Adm No, First name, Last name and course for all students to be awarded the certificates. Save as GRADUANTS.
(5mks)

(k) Prepare reports for STUDENTS DETAILS, FEE PAYMENT, FEE PAID, SEND HOME,

GRADUANTS. (5mks)

(l) Print the reports in (l) above. (5mks)

QUESTION 2: (50MKS)

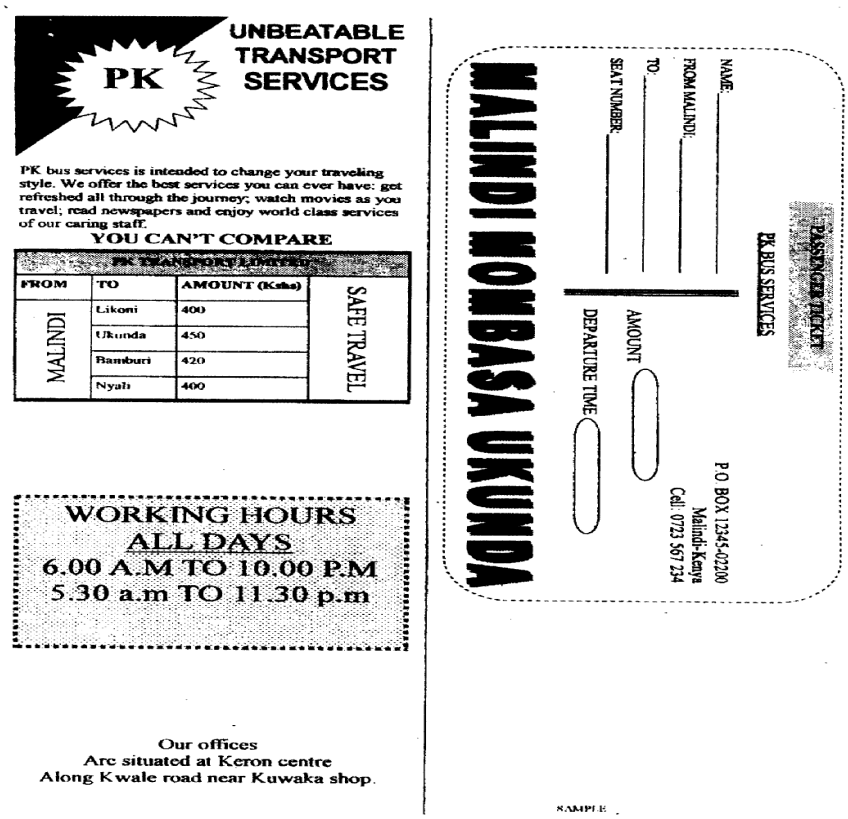
PK is new transportation company. The managing director would like to produce an advert to enable him to reach out to local towns.

a). Prepare a publication layout with the following specification:

(i) Paper size A4
(ii) Orientation Portrait
(iii) Number of pages 1
(iv) Margins 0.5 inches all round
(v) Create column guides to subdivide the page into two columns
(vi) Space between columns 0.3 inches (6mks)

b). Produce the publication as shown in the sample. All the text are in **Times New Roman** size **12** except.

(a) PK in the logo **Size 28**
(b) Unbeatable **Size 20**
(c) You can't compare **Size 14**
(d) Working hours **Size 22**
(e) Passenger Ticket shading is **Accent 4**
(f) Fill pattern for working hours is **5%** (44mks)



MANG'U HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
PAPER 1
(Theory)
TIME 2½ HOURS.

SECTION A: (40 MARKS)
Answer ALL the questions in this section

1. State the technology used in the following computer generations (2mks)
   i) 4th generation:
   ii) 1st generation:.
   Iii)2nd generation:
   iv) 3rd generation:
2. Outline **two** areas that should be considered when categorizing software.(1mk)
3. State any **three** disadvantages of a magnetic diskette. (3mks)
4. a) Define the data processing. (1mk)
   b) Explain **two** characteristics of good information. (2mks)
5. Distinguish between data verification and data validation. (2mks)
6. Describe the following menu tools as used in Ms. Word (2mks)
   i) Print layout:
   ii) Web layout:
7. Define the following terms as used in mail merging (4mks)
   i) Main document:
   ii) Data source
8. a) Difference between real –time system and online systems. (2mks)
   b) Explain how information and communication technology has contributed to teaching and learning in schools. (2mks)
9. a) State the use of the following network devices. (2mks)
   i) Network interface cards
   ii) Routers
   iii) Distinguish between thinnet and thicknet coaxial cables. (2mks)
10. Convert (111.010_2) to decimal number. (3mks)
11. Explain the type of errors that are likely to exist in a program? (4mks)
12. State **three** ways in which **ICT** can be used in industrial control. (3mks)
13. State **two** reasons why it is necessary to have well connected and proper cables in a computer lab (2mks)

14. What do you understand by the term '**soft system"** in a system development? (1mk)

15. What is a relational database (1mk)

Answer SECTION B (60 MARKS)

question 16 and any other THREE questions from this section in the spaces provided

16. Mumias sugar company pays casual employees based on the number of hours worked as follows

Less than 10 hours @ khs.100/= per hour

Up to 15 hours @ khs150/= per hour

More than 15 hours @khs200/= /per hour

a) Write a pseudo code to input the name, rate hours worked. The pseudo code should output the name, hours worked and the wage paid. (6mks)

b) Draw a flowchart for the above pseudo code . (5mks)

c) Write brief notes on structured programming (4mks)

17 a) List **four** characteristics of a system (2mks)

b) Give any **three** circumstances that may make an organization to develop a new information system (3mks)

c) Study the spreadsheet below and answer the questions that follow

	A	B	C	D
1	WESTLINK COMPUTER BOOKS CENTRE			
2	TITLE	PRICE	NO. SOLD	COST
3	Computer longhorn book2	320	25	
4	Visual basic (6) turbo	820	21	
5	Computer longhorn book4	350	100	
6	Computer science	900	12	
7	Computer Applications	845	36	
8	Computer hardware	1250	10	
9	Computer software	1250	27	
10				

i) Write down the formula used to find the price of the cheapest book.(1mk)

ii) Write down the formula used to determine the total sales for the book titled' computer applications (1mk)

iii) Write down the formula used determine the average price of the all books (2mks)

d) State any **four** advantages of using an electronic spreadsheet as compared to a traditional spreadsheet (2mks)

e) Differentiate between a column chart and a bar chart as used in spreadsheets (4mks)

f) Define the term gutter in relation to column setting in DTP (1mk)

18. a) Name and describe four main application areas of artificial intelligence in ICT (12mks)

b) State **three** advantages of automated production in manufacturing industries (3mks)

19 a) Describe any **two** roles of the following career opportunities in the ICT field. (8mks)

i) Systems analyst

ii) Information system manager
iii) Network administrator
iv) Computer trainer

b) Distinguish between a primary key and a foreign key as used in DBMS. (2mks)

c) What do the term header and footer mean? (2mks)

d) What do you understand by the terms attenuation and baseband signal. (2mks)

20. a) Define the following terms. (3mks)
i) Record
ii) File
iii) Database

b) i) List any **three** ways of dealing with a virus on a computer. (3mks)
ii) Explain the functions performed by (2mks)
a) The control unit
b) Arithmetic and logic unit (ALU)

c) Convert the 522^8 to its base 10 equivalent (2mks)

d) Using long division methods convert 67_{10} into binary. (2mks)

e) Outline **three** disk management activities. (3mks)

MANG'U HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

Answer the questions

1. The information below was extracted from CMC vehicle selling business

Buyer Name	Buyer Address	Buyer Town	Vehicle Reg NO	Vehicle Type	Vehicle Make	Vehicle price	Buyer Number	Amount paid
peter	254	Nakuru	KAJ 001	Matatu	Nissan	1200000	B001	800000
john	678	Eldoret	KAJ 002	Bus	Mazda	2400000	B002	2000000
Ken	963	Nairobi	KAJ 003	Saloon	Toyota	800000	B003	600000
Peter	147	Nakuru	KAJ 004	Pick up	Peugeot	1000000	B004	700000
Roy	456	Bungoma	KAJ 005	Lorry	Isuzu	3000000	B005	2000000
Glen	789	Webuye	KAJ 006	Pick up	Toyota	1800000	B006	1600000
John	678	Eldoret	KAJ 007	Bus	Scania	7500000	B002	7500000
Ken	963	Nairobi	KAJ 008	Matatu	Toyota	1300000	B003	1300000
Phillip	159	Kisumu	KAJ 009	Saloon	Nissan	900000	B007	900000
Peter	254	Nakuru	KAJ 010	Pick up	Isuzu	1500000	B001	1200000
Ken	357	Kisumu	KAJ	Saloon	Peugeot	700000	B008	700000

			011					
Glen	789	Webuye	KAJ 012	Bus	Isuzu	10000000	B006	9500000
Peter	147	Nakuru	KAJ 013	Matatu	Nissan	2700000	B004	2700000

a) Create a database file named CMC (2 marks)

b) Using the information in the table, create a table to hold vehicle detail and another to hold buyer details. Name them **tblvehicle** and **tblbuyer** respectively (4 marks)

c) Enforce referential integrity between two tables. (2 marks)

d) Create different input screen for each table, giving them appropriate title. Name them **frmvehicle** and **frmbuyer**. Use them to enter data into the tables. (12 marks)

e) Display a report only showing the details of the buyers who have cleared paying for the vehicle. Name the report **rptcleared** with ''CLEARED BUYERS'' as the title of the report. (10 marks)

f) Using the two tables create an outlined report showing the customer details, the total amount paid by each customer and the total amount received by CMC during this time. Name the report **rptnilbal** and the title as 'SUMMARY REPORT PER BUYER.' (8 marks)

g) Create a query to display the vehicle details with balances of less than 500,000 but not less than 300,000. Name the query as **qrymidbal.** (7marks)

h) Create a report showing the vehicle type, the total sales for each type and the grand total. (3 marks)

i) Print **tblvehicle, tblbuyer, rptcleared, and rptnilbal** and **qrymidbal** landscape orientation with footers being your last name and index number at the centre of the page. (2 marks)

2. Use a spreadsheet to manipulate data in the table below.

Adm. NO	Name	Stream	Comp	Art	Bus	Eng	Mat	STUDENT MEAN	RANK
C001	Barasa	H	56	45	36	56	26		
C002	Wangila	K	58	57	90	54	23		

C003	Wafula	H	48	56	54	45	25		
C004	Wanjala	K	78	95	78	46	24		
C005	Kerubo	H	49	86	68	35	52		
C006	Akinyi	K	56	45	25	63	54		
C007	Odhiambo	H	75	78	45	65	56		
C008	Okunyuku	K	89	69	65	53	51		
C009	Nekesa	H	69	58	45	54	52		
C010	Simiyu	H	85	46	78	52	53		
	TOTAL								
	TOTAL	FOR H							
	TOTAL	FOR K							

a) Enter the data in all bordered worksheet and auto fit all columns. Save the workbook as mark1
(15 mks)

b) Find the total marks for each subject (3 mks)

c) Find total for each subject per stream using a function. (5 mks)

d) Find mean mark for each student using a function (5 mks)

e) Rank every student in descending order using the mean (5 mks)

f) Create a well labeled colum chart on a different sheet to show the mean mark of every student. Save the workbook as mark2. (7 mks)

g) Using mark1, use subtotals to find the average mark for each subject per stream. Save the workbook as mark3 (7 mks)

h) Print mark1, mark2, and the chart (3 mks)

PRECIOUS BLOOD KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Time 2 ½ HOURS

SECTION A (40 MKS)
Answer ALL the questions in this section

1. Define the following terms (4mks)
   (i) Multiplexing
   (ii) Baseband signal
2. Explain the difference between digital signal and analog signal in data communication (2mks)
3. List down **Four** types of computer viruses (2mks)
4. Define the following terms as used in disk management
   (i) Partitioning (1mk)
   (ii) Defragmenting (1mk)
5. Explain the following terms as they are used in internet
   (i) Sign in (1mk)
   (ii) Surf (1mk)
   (iii) Downloading (1mk)
6. State **Three** ways in which your school librarian can use a computer (3mks)
7. Distinguish between simulation and virtual reality (2mks)
8. Convert 11011011111_2 to Octal (3mks)
9. (a) One of the challenges that computer organizations face is unauthorized access to computer systems. Distinguish between logical access and physical access. (2mks)
   (b) State **One** way in which each of the types of unauthorized access to computer systems can be controlled. (2mks)
10. Give **Two** possible ways of fitting the document in one page (2mks)
11. Differentiate between real time processing and batch processing giving examples where each could be used (2mks)
12. Give **Two** advantages of an electronic spreadsheet over traditional analysis ledger sheet (2mks)
13. List **Four** E-mail services (2mks)
14. State any **Three** advantages of simulation in training (3mks)
15. Suggest **Two** possible causes of data and program loss in computer (2mks)

SECTION B (60 MARKS)

Answer question 16 and any other THREE questions in this section

16. (a) Jane is a landlord and she rents houses for Ksh.2500 per month. A customer is awarded a 5% discount if he/she pays rent for over six months in advance. Currently, Jane has ten rental houses which are fully occupied. Develop a pseudo code that can capture the rent payment for all the ten tenants and calculates the total amount paid and the total discount awarded. (7mks)

(b) Draw a flowchart for the above algorithms (5mks)

(c) Program documentation is writing of support materials explaining the program.
State **Three** types of program documentation (3mks)

17. (a) Define the term 'Data integrity' (2mks)

(b) Give **Three** ways in which one would curb threat to data integrity (3mks)

(c) Explain the following electronic data processing modes giving relevant examples
Where they are used.

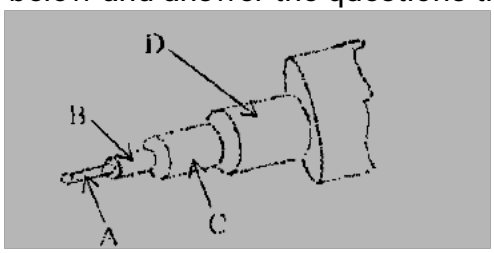
(i) Real time processing (2mks)

(ii) Distributed data processing (2mks)

(d) Give **Three** components of a computer based information system (3mks)

(e) Computer hardware is categorized according to the types of operations it performs. List **Three** operations. (3mks)

18. Study the diagram below and answer the questions that follow.



(a) (i) Name the above cable as used in data communication media (1mk)

(ii) Name the parts labeled A, B, C and D (4mks)

(iii) Highlight any **Three** advantages of the above cable. (3mks)

(b) (i) What is an Uninterruptible Power Supply (UPS) (2mks)

(ii) Explain **Two** functions of UPS (2mks)

(c) (i) Give **Two** advantages of sound output devices (2mks)

(ii) Why are CD-ROM and CD-R referred to as WORM? (1mk)

19. Information and Communication Technology is relatively a new area of study which is advancing. Due to this reason, everyone is expected to keep a breast with the changing trend of information and Communication Technology (ICT)

a) (i) Explain how ICT has affected employment (3mks)

(ii) Explain **Two** health problems that have resulted from prolonged use of computers (4mks)

(b) (i) What is artificial neural network? (2mks)

(ii) Give **Two** features (artributes) of neural networks. (2mks)

(c) Explain characteristics of a system

(i) Holistic thinking (2mks)

(ii) System entropy (2mks)

20. (a) (i) Distinguish between a system analyst and a programmer (2mks)

(ii) List **Two** types of job opportunities that are available in the field of computer hardware. (2mks

(b) Highlight any **Two** factors you would consider before enrolling for an ICT course in a college. (2mks)

(c) Give **Two** disadvantages of observation when used in fact finding. (2mks)

(d) Explain the following changeover strategies

(i) Parallel changeover (2mks)

(ii) Phased changeover (2mks)

(e) Explain briefly each of the following in data security.

(i) Firewalls (1mk)

(ii) Data encryption (1mk)

(iii) Sabotage (1mk)

PRECIOUS BLOOD KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

ANSWER ALL QUESTIONS

1. Mwangaza Training College offers Three courses to students. A student sits for three exams every semester, each exam marked out of 100. The students must have been enrolled first.

The following is sample data collected from the college database

Courses

Course	Course description	Tuition fees
D-SECT	Secretarial Diploma	Kshs.15,000
D-INT	Diploma in IT	Kshs.18,000
D-ACCT	Diploma in Accounting	Kshs.16,500

Students enrollment

Student ID	St name	Sex	Date enrolled	Course code
SECT-	Gladys Cherop	Female	12/05/2011	D-SECT

01				
INT – 03	James Mucheru	Male	16/05/2011	D-INT
ACC – 04	Peter Marangi	Male	18/05/2011	D-ACCT
SECT – 06	Jane Kamene	Female	17/05/2011	D-SECT

Exams offered

Exam code	Ex name
01	Opener
02	Midterm
03	Endterm

Exam performance

Exam record no	Student ID	Exam code	Semester	Score
1	SECT – 01	01	2	75
2	INT – 03	02	2	80
3	ACCT – 04	01	2	65
4	SECT – 01	02	2	70
5	ACCT – 04	02	2	60
6	INT – 03	01	2	68
7	SECT – 01	03	2	78
8	INT – 03	03	2	74
9	ACCT – 04	03	2	66

NB:- A course can be enrolled by many students and a student can do many exams. One exam can also be done by many students as shown in exam performance table.

Required

(a) Create a database file called Mwangaza College and save it. (2mks)

(b) Create a table structure for each of the four tables, setting most appropriate field as the primary key and choosing the most appropriate data type for each field (12mks)

(c) Relate the four tables as required to have one to many relationships (4mks)

(d) Create a data entry form for each table (8mks)

(e) Using the forms, populate the tables with the records (8mks)

(f) Query the tables to show Stname, Coursedescription. Exname, Exrecordno and

score for all students who scored greater than 70. Save the query as high score (5mks)

(g) Create a grouped report that displays every student's details and his or her exam Performance as follows;
Student details – Stname, StudentID, Coursedescription.
Exam performance – Exname, Score, Average score. Save the report as performance report

(h) Print Exam performance table in landscape, high score query in portrait and performance Report in portrait orientation. (6mks)

2. Excel school ordered computer accessories and the following suppliers provided the following As illustrated below.

	A	B	C	D
1	Name	Item Sold	Amount	Date
2	Joseph	Mouse	200.00	2/11/2011
3	Peter	System unit	5,000.00	3/11/2011
4	Tony	Keyboard	200.00	4/11/2011
5	Mike	CD Writer	2,000.00	5/11/2011
6	Joseph	Computer1 System	2,000.00	6/11/2011
7	Peter	Mouse	200.00	7/11/2011
8	Tony	Mouse	200.00	8/11/2011
9	Mike	System Unit	2,500.00	9/11/2011
10	Joseph	Keyboard	200.00	10/11/2011
11	Peter	CD writer	3,000.00	11/11/2011
12	Tony	Computer System	5,400.00	12/11/2011
13	Mike	Mouse	200.00	13/11/2011
14	Joseph	System Unit	3,000.00	14/11/2011
15	Peter	Keyboard	200.00	15/11/2011
16	Tony	CD Writer	2,500.00	16/11/2011
17	Mike	Computer system	6,000.00	17/11/2011

(a) Enter the data shown into a spreadsheet and save it (the workbook) as Excel. (11mks)

(b) Copy the content of Sheet 1 to Sheet 2 into the exact position and rename it as New price.
Insert a new row after the Amount row and label it "New price". The suppliers of the items decided to, increase all their items by 20%. Enter the percentage into cell A18. Using absolute referencing, calculate the New price of each of the items in the "New price" column. (7mks)

(c) Copy the content of Sheet 1 to Sheet 3 and rename it as Subtotals. Using subtotals sheet

Find subtotals for each supplier and display the Grand Total. (6mks)

(d) Using the subtotals sheet, Create a column graph (bar graph) to compare the total cost of all items bought from each supplier. The x-axis should be labeled as “Names” and the y-axis “cost items’. Each bar should display a total value it represents on top of it and the supplier’s Name below it. The title of the graph should read, SUPPLIERS COMPARISON TOTALS. Place the graph on a new sheet and rename the sheet as BAR GRAPH (8mks)

(e) Insert a new sheet into the workbook. Rename this sheet as “Filtered”. Open the subtotals sheet. Filter the records of all suppliers whose New price is greater than or equal to 6000 or less than 250. Copy the results onto the “Filtered” sheet. (6mks)

(f) Open sheet 1. Restrict all the cells in the Amount column to allow entry of amounts between 0 and 6000. A message, “Input amount <= 6000” should be displayed whenever a cell is selected. In case of an invalid entry, the message, “Amount >6000”, should be displayed. Put an inside and outside border on data on sheet 1. (5mks)

(g) Put the sheet name as the header and your name. School and index number as footer for every sheet in your workbook. Save your work on a removable storage media and p**rint ALL the worksheets**

MOI GIRLS HIGH SCHOOL – ELDORET KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
Time: 2 Hours

Answers ALL the questions in this section in the spaces provided.

1. One function of an operating system is to control computer resources. State **four** resources under operating system control (2 marks)
2. a). Define the term plotter (2 marks)
   b). List two types of plotters (1 mark)
3. Explain the following terms as used in the word processing (4 marks)
   a). indenting
   b). Alignment
   c). Foot note
   d). Endnote
4. List three application areas of artificial intelligence. (3 marks)
5. Differentiate between COM ports and LPT ports. (2 marks)
6. List **three** factors to consider when deciding on the choice of an electronic data processing method. (3 marks)
7. Ventilation is an important practice in the computer lab because it enhances proper circulation ofair. Outline **three** ways in which air is regulated in the computer room. (3 marks)
8. List **four** advantages of optical disks over floppy diskettes (4 Marks)
9. What does the following control measures against computer crime involve? (4 marks)
   a). Audit trail
   b). Data encryption
   c). Log files
   d). Passwords
10. List four examples of flat panel displays (2 marks)
11. Define the term mail merging (2

marks)

12. Name **two** files that are created in mail merging process (2 marks)

13. While purchasing computers for his school the principal Musambweni high school decided to consult an expert. As a computer student advise him on **four** hard ware considerations (2 marks)

14. Name four methods used in data management on a worksheet (2 marks)

15. List four formatting techniques used in excel. (2 marks)

SECTION B. (60 MARKS)

Answer question 16 *and Any* ***other three*** *questions*

16. a). Study the pseudocode below and design a flowchart for the pseudocode. (8 marks)

```
Set total to zero
Set grade counter to one
While grade counter is less or equal to ten
Input the next grade
Add the next grade into total
Add one to the grade counter
Set the class average to the total divided by ten
Print the class average.
```

b). Describe **three** methods of testing the program for errors. (3 marks)

c). List down **four** selection controls used in writing a program (2 marks)

d) Outline **four** benefits of modularization in programming (2 marks)

17 a). Convert the following numbers of their decimal equivalent (6 marks)

a). 11.011_2

b). 11.1011_2

c). 111.10101_2

b). Outline **four** ways in which data integrity may be maintained (4 marks)

c). Discuss **four** advantages of using questionnaires as a fact finding tool (4 marks)

d). What is the role of a recycle bin in Ms. Word? (1mark)

18. a). List **three** advantages of fibre optic cables (3 marks)

b). Differentiate between static RAM and dynamic RAM. (4 marks)

c). Describe the following types of queries found in Ms. Access (3 marks)

i). Update

ii). Append query

iii). Make table query

d). Distinguish between source program and object code (4 marks)

e). Distinguish between a mouse pointer and an insertion point (1 mark)

19. a) Outline **four** major ways the company network administrator can enforce good network practice on user of the company LAN (4 marks)

b). Identify **four** major categories of data handling process which make up a computer

system (2 marks)

c). Outline **four** contents of user manual that would help the user to rum the system with minimal guidance

d). Distinguish between dynamic and static systems (2 marks)

e). List **three** programming languages that can be used by web developers (3 marks)

20. a). Masai Teacher's college has decided to automate its library for effective services to the Students. Identify **four** methods they are likely to use to gather information during system development (4 marks)

b). Define the following terms in relation to internet (4 marks)

i). Downloading
ii). Hyperlink
iii). Web browsers
iv). Internet service providers

c). Differentiate between sorting and filtering as used in electronic spreadsheet program (2 marks)

d). Define the following terms (3 marks)

i). Spam mail
ii). Disk

iii). On board modem

e) Define the term WIMP as used in computing. (2 marks)

MOI GIRLS HIGH SCHOOL – ELDORET KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

QUESTION 1

a). Type the following passage exactly as it appears in to a word processor and save is as A: DOCA

GEOGRAPHICAL INFORMATION & DATA

Geographical data is spatially reference data which can be displayed graphically as map images. That is the attitude of a location represented on a map. These data could be either quantitative (like elevation temperature) or qualitative (like land use in the location). In addition the attributes could be temporal. A lot of geographic attributes change with time of day, month, season, solar cycle and even over the ages. This information can be displayed on a map in for different forms.

(i) Point data : - This could represent the location of a city, a hospital, a police station etc

(ii) Line data: Items normally represented on maps as a line include railway line, roads, coastline. borderline, rivers etc

(iii) Polygon data: - These represent the boarders of specific regions such as seas, countries, city etc

(iv) Surface data: - This is information over a region such as country, province, district, lake, ocean, forest e.t.c

Functionally GIS should at least consist of a geographical data process subsystem, geographical data analysis subsystem and **a** geographical information use subsystem, a geographical data analysis subsystem and a geographical information use subsystem.

A few examples of GIS users are land surveyors
Planners, resources forecasters and managers, public
Protection and security officers, property developers
And investors, education and transport managers

This list is expanding day by day as GIS systems are becoming more affordable.

Hardware trends affecting GIS

The most important hardware activity that will affect GIS is cheapening or processor cost. With falling costs of the high speed microprocessors, Graphic workstations are now available for less than three thousand pounds sterling. This means that there are Graphic based computer systems being used by more and more users.(26 marks)

b). i) Search and replace the passage with word information except in all of those occurrences in bold type face.

ii) Capitalize the first character of all occurrences of the word geographical

iii) Save the passage as A: DOCB (6 m**arks)**

c). i) Reformat the paragraph starting with 'A few examples " so that the left and right margins are the same as those of the paragraph above it.

ii) Save the passage as A: DOCC (6 marks)

d). Re-order the section labeled (i), (ii), (iii) and (iv) such that the original iii becomes (i), original (iv) becomes (ii), original (ii) becomes (iii) and original (i) becomes (iv) that order and retain the formatting style (6 marks)

e). i). Change the paper orientation to landscape

ii). Save the passage as A: DOCD (6 marks)

f). Print DOCA, DOCB, DOCC and DOCD (6 marks)

QUESTION 2

Munjiru is a secretary for the Entrepreneurs Club. She has been told to use a database management system (DBMS) to help the club maintain records on the club's members. Perform the following operations just like Munjiru would

a). i). Create a database table (or file) that has the following fields of data for each member last name, first name, membership number, date of registration, membership fee paid, age, telephone number and a memo field status(14 marks)

ii). Make the membership number record identifier (the primary key) (2 marks

iii). Index on membership number (2 marks)

b). Input the following data:

Last name	First name	Membership number	Date of registration	Membership fee paid	Age	Telephone	Status
Munjiru	Margaret y	Yec/002	11.08.93	5000.00	45	573223	Fully Paid Founder member
Salim	Said	Yec//101	15.07.97	5000.00	50	568880	Fully paid Ordinary member
Kamau	John	Yec//007	01.01.96	2000.00	65	443311	Senior citizen Member with concessionary rates
Onyango	Victor	Yec//031	10.02.96	4000.00	37	747419	Ordinary member to pay 1000.00
Ali	Majid	Yec//055	19.10.96	3500.00	32	720122	Ordinary member to pay 1500.00
Katiku	Peter	Yec//067	15.05.97	0.00	25	717100	Ordinary Member Defaulter
Korir	Kelvin	Yec//098	05.03.98	5000.00	38	767822	Ordinary member, fully paid
Wafula	Joyce	Yec//023	23.04.95	5000.00	43	500655	Ordinary member, fully paid
Kikoto	Mary	Yec//048	09.06.96	2000.00	28	543421	Temporary member for 6 months only
vijhu	machu	Yec//074	29.11.97	1000.00	55	811015	Honorary member

c) i) Insert the fields that will accommodate Y for Yes and N for No

ii) Indicate in these new fields those membes who have paid more than sh. 4000.00 with Y otherwise N

iii) Save table as A: Club2

d. i). Create a query that contains the fields Membership Number, Last Name, Date of registration, Membership fee paid and status for all members who have paid less than sh. 4000.00 and registered after 15/4/1995 or are above 35 years of age (8 marks)

ii. Write on the paper provided the query expression you use (2 marks)

iii. Save the query as A: clubQ (2 marks)

e. i). Excluding the status field, create a report and give it the title: ENTREPRENEURS CLUB (10 marks

ii). Save the report as A: Club R (2 marks)

KAPSABET BOYS KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Time 2 ½ HOURS

SECTION A: (Answer ALL questions in this section)

1. State **three** reasons why it is difficult to control, detect and prevent computer crimes. (3mks)
2. Explain the difference between ring and star network topology. (3mks)
3. State three factors that have led to slow growth of e-learning in Kenyan schools. (3mks)
4. a) What is virtual Reality? (1mk)
   b) State two sensory devices used in virtual reality. (2mks)
5. Describe the meaning of the following terms as use in ICT. (3mks)
   i) Protocol
   ii) Gateway
   iii) Band width
6. List down four features of user friendly program. (2mks)
7. Explain two reasons why computer uses binary numbers in data representation. (2mks)
8. List four types as courses in ICT offered at degree leven in Kenya. (2mks)
9. Different between sorting and filtering of data as used in spreadsheet. (2mks)
10. Distinguish between a system and an information system . (2mks)
11. Convert the following into binary
    i) $76CD_{16}$ (2mks)
    ii) 123_8 (2mks)
12. Distinguish between DRAM and SRAM memories. (2mks)
13. Outline the two types of twisted pain cables. (2mks)
14. a) State and explain one type of computer processing file. (2mks)
    b) List three file organization methods. (3mks)
15. Mobile phones have becomes common ICT devices. List some of the powerful capabilities that come with some of the latest embedded operating systems in mobile phones. (3mks)

KAPSABET BOYS KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

---

1. a) Type the text below as it is into a word processor software. (18mks)

   System development

   For four purposes, the implementation process runs from the point when the systems design has been formally approved to the point when the new system

is in place, ready to be used. As mentioned above, a decision could have been made to acquire commercial software for implementing the new system.
The following are the major activities which comprise the implementation process.

(1) Develop detailed programming specifications
(2) Develop test specifications and test data
(3) Write computer programs
(4) Test computer programs
(5) User testing
(6) File conversion
(7) change over to the new system

Again, there is usually significant overlap among the above activities, For instance, file conversion may proceed while programs are being written.
DECISION TABLE
A decision table allows an analyst to set out a clear way in what could be a confusing situation.

		1	2	3	4
Conditions	Purchaser is a member	T	T	F	F
	Purchaser exceeds Ksh. 1000	T	F	T	F
Actions	15% discount	√			
	10% discount		√		
	7% discount			√	
	No discount				√

b)

(i) Centre and underline the title. (2mks)
(ii) Change font size of the headline to 25 pts. (1mks)
(iii) Change the case of the headline to Title case.
(1mks)

c) Insert this text as the page footer in Italic, “System development life cycle” . Place
it at the left of the page. (4mks)

d) Spell check your document.
(4mks)

e) Save your document as SDLC FILEI.
(2mks)

f) Excluding the title, set your document to be in two columns to the beginning of the subtitle, “decision table” . (5 mks)

g) Double space the first paragraph of your document. (3mks

h)

i) Expand the title by l0pts in character spacing.
(4mks)
ii) Use dotted line to underline your headline.
(3mks)
iii) Save your document as SDLC F2. (2141(S)
iv) Print SDLC Fl and SDLC F2
(2mkd)

Q2.

The data in the tables below was obtained from various insurance companies.
Table 1: Insurance policy

Policy category	Policy type
PC01	LIFE
PC02	VEHICLE
PC03	HOUSE

Table2: Customer

NAME	GENDER	MONTHLY CONTRIBUTION	REGNO	INSUARER ID	POLICY CATEGORY	TEL NO
JIM	M	7000	8790	I01	PC02	0754233445
ALICE	F	5000	9094	I02	PC03	0724345765
JOHN	M	7500	6790	I01	PC01	0728567654
JANE	F	6700	8950	I01	PC02	0734543321
BEN	M	5000	7980	I03	PC01	0721564786
PAUL	M	6500	7956	I04	PC03	0753213456

Table3: insuring company

Company id	Company name
I01	WORLD WIDE
I02	PROMISE
I03	GATEWAY
I04	EASY

a) i) Create a database named INSUARANCE. (2mks)

(ii) Create the three tables above in your database. (l2mks)

(iii) Create relationships between the tables. (3mks)

(iv) Create and use forms to enter data into the tables. (l2mks)

b)

(i) Generate a report to display the Name. Gender, policy type, and company name. (8mks)

(ii) Create a query to display total monthly contribution made by WORLDWIDE Company. (4mks)

c)

(i) Using a query, display the customer' s name, contribution, policy category, and company name . (5mks

d) Print:

i) Your tables (3mks)

ii) Report (1mk)

iii) Two queries (2mks)

BAHATI GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
PAPER 1
TIME: 2 ½ HOURS

SECTION A : (40 MARKS)
Answer all Questions in the spaces provided.

1. State **three** factors that you would consider before replacing or upgrading a computer memory (3mks)
2. State **three** characteristics of a well designed and developed software. (3mks)
3. List **two** web programming languages. (2mks)
4. Explain three parts of a task bar. (3mks
5. Define (2mks)
   (i) Base band
   ii) Broad band
6. (a) Define the term artificial intelligence (1mk)
   (b) List four areas where artificial intelligence is applicable. (2mks)
7. State three ways of moving round the page in a desktop publishing window (3mks)
8. Differentiate between the following (4mks)
   (i) Insert mode and type over mode.
9. State two ways in which horticultural farmers can benefit from the use of information and communication technology.

(2mks)

10. Name three mouse clicking techniques. (3mks).
11. State two disadvantages of networking. (2mks)
12. A student presented a budget in the form of a worksheet as follows.

A	B	
1 ITEM	AMOUNT	
2 Fare	200	
3 Stationary	50	
4 Bread	300	
5 Miscellaneous	150	
6 Total		

a) Write a formula to get the total in B6 (1mk)
b) State the expression that would be used to obtain the least expenditure. (1mk)
c) Distinguish between filtering and sorting (1mk)

13. Differentiate between bound and unbound control (2mks)
14. Identify the most appropriate data types for this fields (4mks)
    (i) Name
    (ii) Admission Number
    (iii) Fees (iv) Date
15. What is program documentation (1mk)

SECTION B (60 marks)

Answer question 16 and any other three questions from this section in the spaces provided.

16. Tusaidiane Savings Society (T S S) pays 5% interest on shares exceeding 100,000 shillings and
    3 % on shares that do not meet this target .However no interest is paid on deposits in the member's T S S bank account.
    Design
    (a) An algorithm for the program that would (7mks)
        (i) Prompt the user for shares and deposit of a particular member.
        (ii) Calculate the interest and total savings.
        -the interest and total savings on the screen for a particular member of the society.
    (b) Using a flow chart. (8mks)
17. (a) The following are some of the phases in the systems development life cycle (SDLC)
    system analysis, system design, system implementation, system review and maintenance . State four activities that are carried out during the system implementation phase (4mks)
    (b) Give three reasons why system maintenance phase is necessary in SDLC (3mks)
    (c) State two instances where observation is not viable method of gathering

information during system analysis stage
(2mks)

(d) Various considerations should be made during input design and output design. State three considerations for each case
(6mks)
(i) Input design.
(ii) Output design.

18. (a) One of the functions of an operating system is job scheduling. Explain what is meant by Job scheduling. (2mks)
(b) List and explain three types of user interfaces. (6mks)
(c) Describe the following categories of software. (4mks)
(i) Firmware.
(ii) Proprietary software.
(d) A new company ABC intends to go into business of desktop publishing. Advice the company on three computer hardware specification features to consider as a measure of enhancing performance.
(3mks)

19 (a) Convert the decimal number 0.5625_{10} into its binary equivalent. (5mks)
(b) Find the sum of

$$\begin{array}{r} 00110_2 \\ + \\ 01101_2 \\ \hline \\ \hline \end{array}$$

(c) Using the ones complement, calculate $31_{10} - 17_{10}$ in binary form.
(5mks)

20. (a) Define the term network topology
(2mks)
(b) Name two advantages and two disadvantages of ring topology
(4mks)
(c) Name five components of the fibre optic cable.
(5mks)
(d) Other than the ring topology name other 4 types of topologies.
(4mks)

BAHATI GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 201 6

Paper 2

Question 1

1 a) Below is one side of a receipt. On an A4 wide paper, design it and fit four copies on the A4 paper and save your work as Receipt.
(46mrks)
B) Include a page header with your name and index No (2 mrks)
c) Print the document (2 mrks)

P.O. BOX 401 -40123 PIN. NO.
A00112911Z
Mega City – Kisumu CASH SALE
ELMORE BOOKSHOP

Date:_____
M/S_____

Qty	Particulars	@	Kshs	cts

Question 2

2 Below is a cash statement for the first half of the year for kaloka safaris tours & Travel 2011.Enter the data into a worksheet as shown. Save your work in a CD as Kaloka safaris (15 mks)

	A	B	C	D	E	F	G	H
1			KALOKA SAFARIS TOURS & TRAVEL					
2			Income and Expenditure for 2011					
3								
4								
5								

6								
7								
8		Quarter 1	Quarter 2	Quarter 3	Quarter 4	TOTAL		
9								
10								
11	INCOME (SALES)							
12	Safaris to parks	83,394	110,237	114,563	117,329			
13	Commission from booking	1,000	1,000	2,000	500	1400		
14	TOTAL SALES							
15								
16								
17								
18								
19	EXPENSES					TOTAL		
20	Cost providing services							
21	Rent	10,000	10,000	10,000	10,000			
22	Salaries	20,000	20,000	20,000	20,000			
23	Email/internet	5,000	5,000	5,000	5,000			
24	Electricity	2,050	2,050	2,050	2,050			
25	Advertising	12,000	13,000	13,700	45,000			
26	Travel	20,000	23,000	30,000	23,000			
27	Misc	1000	1200	1400	2300			
28								
29	Total expenses							
30								
31	Profit							
32								

b) Calculate the following; (4 mks)
   i) Total Expenses and sales for each quarter
   ii) Profit/loss
   iii) Calculate total sales and Expenses for Quater1- Quater4
   iv) Add a row below total expenses and label it 'Highest Expenditure" use a formula to obtain this figure

c. Format the heading 'KALOKA SAFARIS TOURS &TRAVEL'' (5 mks)
   Alignment: Merge and centre
   Font style: Bold &Underlin, Font Size: 16
   Font Type: Arial. Name the worksheet kaloka 1.

d. Insert a new worksheet and name it kaloka2. Copy the contents of Kaloka 1 to Kaloka2. (2marks)

e. Kaloka Managing Director wanted to know what her income from sales would be. Using Kaloka 2 worksheet add a row below Net income and label it comment. Generate using a formula a comment showing "Loss" if the sales are negative and "profit" if the sales are negative. Align the months to 45' (degrees) (7 marks)

f. (i) By using kaloka2, 10% of the profit is to be set a side for development please add arrow to calculate the same. Sort the expenses by Name from Ascending to Descending, then sort by January expenses (4 marks)
   (ii) Insert a column chart and use it to compare total sales and total expenses, ensure that it is on its own page. (6marks)

g. Using kaloka 2 add arrow below "profit" add to calculate the sum of all values in quarter 1 whose expenses are above 5000 (4mrks)

h. Print Kaloka 1 Kaloka 2 and Kaloka chart (3marks)

KABARAK HIGH SCHOOL KCSE TRIAL

AND PRACTICE EXAM 2016

451/1
PAPER 1
THEORY
2 ½ HOURS

SECTION A (40 MARKS)
Answer all the questions in this section in the spaces provided.

1. Distinguish between parallel and serial cables (2 mks)
2. Differentiate between **Error Handling** and **interrupt handling** (2 mks)
3. Name four malicious programs that can affect your computer system (2 mks)
4. What is meant by expert systems? Name the three components (4 mks)
5. Name two ways of editing cell entries in spreadsheets. (2 marks)
6. Describe TWO roles of each of the following;
   (a) Database Administrator (2 marks)
   (b) System analyst (2 marks)
7. (a) Describe two facilities offered by email software such as Ms Outlook. (2 marks)
   (b) Name other two email softwares available in the market? (1 mark)
8. State the functions of the following protocols; (2 marks)
   (a) FTP
   (b) TCP/IP
9. What is meant by World Wide Web? (2 marks)
10. Explain the difference between Gas Plasma Display and Liquid Crystal display Monitors

    (2 marks)
11. State the purpose of the following field properties in a Database management software

    (2 mks)

    (a)Input mask
    (b) Validate Rule
12. Differentiate between logical and syntax errors encountered in programming (2 marks)
13. What is a computational error? Give an example to illustrate (2 mks)
14. Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used serial file organization. How are files organized on a storage medium using this method? List two advantages offered by this type of file organization

    (3 mks)
15. Define the following terms in relation to computer security: (6 mks)
    a) Data Encryption
    b) Sabotage
    c) Firewall

SECTION B (60 MKS)
Answer question 16 and any other 3 questions.

16. a) Generate output for the following pseudo code (4mks)

```
START
X= 1
```

```
WHILE X<4 DO
PRINT (X)
X=X+1
Y= X +2
ENDWHILE
PRINT ("DONE',X)
END
```

b) Draw a flowchart for the above pseudo code (4 mks)

b) List any four components of Requirement specification made during system development (2 mks)

c) Describe three kinds of program documentation used in program development (6 mks)

17. The information below is maintained by Jesica Fruit store. Study it and answer the questions that follow:

Product number	Product name	Qty in stock (kg)	Value per unit (ksh)
001	Peach	1000	200
002	Oranges	1200	200
003	Mangoes	1300	100
004	Tomatoes	1200	140
005	Cabbages	1500	25

a) Describe the field data types used in the database above (4 mks)

b) Provide query statements you can use to list the following;

i) Product names starting with letter P. (2 mks)

ii) Value pr unit below 200. (2 mks)

i) List and describe four areas of application of spreadsheets. (4 mks)

ii) Explain Data range, legend and axis as used in spreadsheet charts. (3 mks)

18 a) What is automated production. List two advantages and two disadvantages of automated production (5mrks)

b) i) Name three ways of representing signed binary numbers (3 mks)

ii) Convert $5D6_{16}$ to Binary (2 mks)

iii) Describe any four activities that take place during implementation stage of a system (4 mks)

c) Define the following terms as used in DTP software (1 mks)

I) Cropping

19. a) State and explain any four operating system disk management utilities (8 mks)

b i) What is system maintenance? (2 mks)

ii) Define the following terms in relation to computer software (3 mks)

a) Freeware

c) Open source

iii) List any four likely causes of data and program loss in a computer system? (2 mks)

20 a) With the aid of a diagram explain the following network typologies (6 mks)
- i) Ring topology.
- ii) Bus topology,
- iii) Star topology

b) Define the following terminologies in relation to networking (4 mks)
- i) Crosstalk
- ii) Noise
- iii) Attenuation
- iv) Frequency

c) State two advantages of wireless communications (4 mks)

d) List down one major advantage of networking. (1mk)

KABARAK HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

(a) Create a new database, save it on a removable storage medium and name it **school database**

(b) Create a Table in the *school database* with the following (3mks)

FIELD NAME	DATA TYPE	FIELD SIZE/FORMAT
ADM-NO	Text	10
Name	Text	15
Surname	Text	15
Tel - No	Number	Long Integer
Date of Birth	Date/time	Medium date
Fee – Paid	Currency	Currency
Foreigner	Yes/No	Yes/No

(c) Make the “ADM_Number” Field as the Primary Key (2mks)

(d) Save the table as Student’s Table (2mks)

(e) Open the “Students Table” and enter the following records (3mks)

ADM - NO.	Name	Surname	Tel - No.	Date of Birth	Fee - paid	Foreigner
4567	John Maina	Muiru	55-67543	19/09/1990	25000	No
4576	Mary Nthenya	Mutua	44-23456	20/12/1991	27000	No
4398	Mark Okech	Otieno	22-65473	13/03/1992	20000	No
5678	Peter Rick	Ben	11-76742	15/06/1994	29000	Yes
4378	Joan Liz	Patel	13-89734	18/09/1990	26000	Yes
4897	Peter Amos	Ben	33-37482	17/04/1993	20000	Yes

4643	Muoka Muoki	Nzioki	44-45362	12/12/1991	23000	No

(f) Insert the record given below as record 4 (2mks)

4120 Rabecca Kalewa Ben 44-24242 13/10/1900 27000 No

(g) Delete Mary Nthenya record from the database file (2mks)

(h) Sort the table in Ascending order by surname (2mks)

(i) Move the ***Date - of- Birth*** and ***Tel - No*** fields so that the ***Date - of- Birth*** field is now directly after the ***surname*** field (4mks)

(j) Change the field size of the ***Surname*** to 20 (lmk)

(k) (i) Create a Form with all fields on the Students Table (2mks)

(ii) Name the form ***Students Entries*** (lmk)

(iii) Insert unbound control named fee - Balance to show the fee balances of all students given the total fee is **35000** and Fee - balance = Total _Fee - Fee Paid (4mks)

(1) Insert a picture in the form in way that all text is visible

(3mks)

(m) (i) Create a report based on the Student's Table showing the ***Fields Name, Surname*** and ***Tel No.*** (3mks)

(ii) Name the report Telephone list (lmk)

(n) Insert a picture in the report Header

(2mks)

(o) (i) Create query _l showing all fields of those students whose surname is Ben

(4mks)

(ii) Create query _2 showing all fields of those students born after 1991

(3mks)

(iii) Create query 3 showing only the Student's Name, Student's Surname and Student's Date of birth

(3mks)

(p) Print ***Students tables Entries form, Telephone list, query_1, query_2 and query_3.*** (3mks)

QUESTION TWO

Using DTP software, create the following document as it is. Save it as software in drive A. Print your publication.

(50 marks)

marks)

SOFTWARE

COMPUTER SOFTWARE

System software
system software performs a variety of fundamental operations that avails computer resources or to help the user accomplish specific tasks.

Functions :-

1. Booting the computer and making sure that all elements of the hardware are working properly.
2. Perform operations such as retrieving, loading, executing and storing programs.

System Software can further be divided into :

Application software
Designed to help the user accomplish specific tasks.

Classification according to acquisition
- **In-house developed programs**
- **Standard software**

Advantages of standard software over the in-house developed programs

- They can be easily installed and run
- They are ready available for almost any task
- Since they are thoroughly tested before they are released , chances of errors in them are rare.
- They can be easily modified
- They are less expensive to acquire

Software	*Uses*	*Examples*
Word processor	Typing documents like letters.	Ms Word, Lotus, WordPro, WordStar
Spreadsheets	Calculating budgets	Ms Excel, Lotus 123
DTP	Design Publications like Newspapers	Adobe Page Maker, Publisher
CAD	Technical Drawing	AutoCAD
Databases	Keeping records and files	Ms Access Dbase
Graphics Software	Creating & Manipulating pictures	Corel Draw, Adobe Photoshop

Factors to consider when selecting software

The following factors should be considered when selecting software:

Authenticity

This refers to genuineness , validity and or legitimacy of an item. Software should be accompanied by licenses and certificate of authenticity.

Compatibility and system configuration

Refers to the ability of the computer program to run the software depending on the system setup.

User friendliness

This is a measure of how easily the user can be able to operate the computer.

User needs determines the type of operating system and application programs that should be considered for application.

SACHO HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
PAPER 1
THEORY
Time: 2 ½ Hours

Answer the questions

1. State three classifications of micro computers when classified according to size. (3mks)
2. Give three main advantages of using computers for data processing functions over other types of office and business equipments (3mks)
3. (a) What is disk partitioning? (2mks)
   (b) Give two reasons for partitioning a disk. (2mks)
4. Give a reason for each of the following hardware considerations when selecting a computer system
   a) Processor speed.

b) Warranty.
c) Upgradeability and compatibility.
d) Portability.

5. Outline the functions of the following utility software (3mks)
(i) Loaders.
(ii) Debuggers.
(iii) Linkers.

6. Draw a diagram to illustrate the following. (3mks)
(i) USB Port.
(ii) Serial Port.
(iii) Parallel Port.

7. A computer operator in your school wanted to print a document but the printer could not print yet the online light is on and the printer paper is correctly placed. Give the other possible reasons why the printing process failed. (2mks)

8. Differentiate between office and magnetic scanning techniques and give two example of each. (4mks)

9. Define the following terms as used in word processing.
(i) Word wrap (lmk)
(ii) Thesaurus (lmk)

10. In a war torn countries such as Somalia, explosives that get buried under ground requires removal in order to provide safety for the people.
(a) Name a computer controlled device that would be used safely for detecting such explosives (lmk)
(b) Explain why you recommend the use of such a device in (a) above (lmk)

11. Explain briefly how Electronic Funds Transfer (EFT) and Electronic Point of Sale (EPOS) is used to facilitate business in Nakumatt supermarkets in Kenya (4mks

12. The most popular type of electronic data storage currently is magnetic disk storage such as hard disk or Winchester disk. Give reason as to why they are popular (2mks)

13. Outline two advantages of hard disk over floppy disk. (2mks)

14. One stage of system development is system testing. Outline the advantages of this stage before implementation (1 mks)

15. State three system changeover strategies (3 mks)

SECTION B (60 MARKS)

Answer question 16 and any other three questions from this section in the spaces provided.

16 a) Define the terminologies;
i) Source code
ii) Object code (4mks)

b) With an aid of a pseudo code and flow chart, write a computer program that can be used to compare the values of two numbers and print the largest number 11m

17. a) Define the following terms. (4 mks)
i) Record

ii) File.
iii) Database
iv) field

b i) List any three ways of dealing with virus on a computer. (3mks)

ii) Explain the functions performed by: (6 mks)

a) The control unit
b) Arithmetic and logic unit (ALU)
c) Main memory:

iii) what is the difference between hacking and cracking (2 mks)

18 a) What is the hexadecimal equivalent of 7478 (3 Mks)

19. a) Define the following terms. (4 mks)

i) Record
ii) File.
iii) Database
iv) field

b) i) List any three ways of dealing with virus on a computer. (3mks)

ii) Explain the functions performed by: (6 mks)

a) The control unit
b) Arithmetic and logic unit (ALU)
c) Main memory:

iii) What is the difference between hacking and cracking (2 mks)

20. a) What is the hexadecimal equivalent of 7478 (3 Mks)

b) Use one's compliment to solve the following sum: (2 Mks)

c) State two reasons for using binary system in digital technology. (2 Mks)

d) Explain the term attenuation as used in networking. (2 Mks)

e) i) Explain the following terms as used in fibre optic cables (4 Mks)

i) Single mode
ii) Multi-mode

f) Convert 7.125_{10} to its binary equivalent. (2 Mks)

21. i) Describe three ways in which computers have positively impacted on education. (3 mks)

ii) The traffic lights serve as output devices for a computerized traffic system. Name the appropriate input device for this system. (1 Mk)

iii) State three advantages of computer based simulation. (6 Mks)

iv) Differentiate between a software engineer and a computer engineer. (2 Mks)

v) Name three duties that are carried out by a web administrator. (3 Mks)

22. (a.) Explain three components of expert systems. (6mks)

(b.) Highlight two types of job opportunities available in the field of computer hardware 2mks)

(c.) List any three internet service providers in Kenya (3mks)

(d.) Describe any four internet services (4mks)

SACHO HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
Paper 2

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1 . a) Create a database called EDU (2 Mks)

b) Create three tables Exam, Student and Boarding with the fields as shown below.

(10 Mks)

c) Create a relationship between the three tables. (3 Mks)

d) Enter the data items in the given tables. (15 Mks)

Student				
AdmNo	**FName**	**LName**	**KCPE Mark**	**Year of KCPE**
1	Peter	Barasa	327	2007
10	Johnson	Suk	250	2001
2	Alex	Ojwang'	340	1998
3	Chepkuto	Esther	250	2008
4	Wekesa	Raymond	450	2007
5	Alex	Wamwana	410	2003
6	Jane	Kilonzo	400	2000
7	Mathew	Kariuki	450	1999
8	Nasimiyu	Catheen	290	2003
9	Kimathi	John	300	2001

1	45	67	90	23
10	45	89	90	20
2	56	70	80	45
3	89	90	90	20
4	78	30	90	50

Boarding			
AdmNo	**Uniform**	**Tool No**	**Tool Name**
1	No	12	Jembe
10	Yes	20	Jembe
2	No	11	Panga
3	Yes	1	Slasher
4	Yes	111	Jembe
5	No	15	Rake
6	Yes	22	Basin
7	Yes	11	Brooms
8	Yes	90	Rake
9	Yes	23	Bucket

e) Design a query that would display the following fields as shown below: Save it as Total.

(10mks)

AdmNo	Yes/No	FName	KCPE Mark	Maths	Eng	Kisw	Total

f) Design a report that would sort the following in ascending order in the order of the following fields: Total, KCPE Mark, FName and Adm No and the report title is ADMINISTRATION. Save the report as Admin (5 Mks)

g) Print, **Exam**, **Student**, **Boarding**, **Total** and **Admin** (5 Mks)

2. a) Using a word processing package, type the passage below as it appears, proofread and save It as Compnetwork 1 in a removable storage media. (24mks)

INTRODUCTION TO COMPUTERS & OPERATING SYSTEMS

A computer is an electronic device that can solve problems by accepting data, performing certain operations on that data (processing) and presenting the results of those operations (Information)

Basic characteristics that distinguish a computer from other information processing devices:

i) A computer is electronic - That is, all its processing operations are carried out with electrical signals.

ii) A computer can store information for future reference - This is done on temporary basis with memory circuits and permanently with storage devices such as magnetic disks and tape.

iii) A computer is programmable - Unlike other devices built to perform a single function, a computer can he instructed to perform a variety of tasks.

NETWORKING BASICS

The Hardware

Network Interface Cards (NIC)

Firstly, each computer must have a network card Computers that run Windows generally use PCI

NICs (Network Interface Cards), although there are other types available, including USB NICs. The PCI NICs tend to retail very cheaply and many newer PCs and laptops come with 10/100 NICs inbuilt.

Switches and Hubs

Secondly, you need a piece of hardware to connect your computers together. There are various options:

• A hub. In a hub, any information arriving in the hub from any computer is sent to every computer connected to the hub. this is the most basic form of network connection device and has largely been superseded by

• A switch. The switch learns which computer is connected to each port, so when it receives a data packet destined for a specific computer the switch will only send that data packet to that specific computer.

The alternative to buying a switch is to use a special cable called a cross-over cable. This is a specially wired cable which will allow you to connect two computers directly, however in my experience all but one situation where a cross-over cable has been initially bought it was eventually been replaced with a switch.

Some switches have printer ports on them, which is useful for windows but less so for RISCOS, unless you have a printer that you have a RISC OS printer driver for more of this later.

Routers

Routers are special types of switches which make a direct connection to the internet and allow all computers to access the internet via the router. They usually include firewalls, HCP servers and can have additional functionality such as web page filtering and VPN
termination. If you wish to just connect RISC OS computers to the internet, this is perhaps the best way to go. Routers can be purchased which will access ADSL or Cable broad band or even 56k dial-up lines.

Cables

Thirdly, you will need network cables. The maximum length between any two pieces of hardware (computer-switch or computer — computer) is 100 m. They can come in all sorts of colours and can be hidden in walls, behind skirting boards and through ceilings. Note that unless you are connecting two computers together directly, you will need normal cables and not cross-over cables.

Network speeds

With cabled networks there are three main speeds

10 megabit or 10-base-- T

> 100 megabit or 100 base — T

1 gigabit or 1000 base — T

b) Save the changes of this document. Copy the document and paste it in a new document. Set the whole document to have a justified text alignment. Save it as **Compnetwork 2** (4mks)

c) Centre the heading and apply border, font size 14 and 30% gray shading (6mks)

d) Double indent the router paragraph by 1.5”

(6mks)

e) Set margins as follows; (4mks)

(i) Left margin 1.5”

(ii) Right margin .5”

(iii) Top margin .7”

(iv) Bottom margin .5”

f) Insert document header as Networking & Hardware Requirements and footer as Introduction to Computer

(4mks)

h) Print **Compnetwork 1** and **Compnetwork 2** (2mks)

STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Time 2 ½ HOURS

Answer all the questions

1. Define the following terms as used in computer.
   a). Firewalls (1 mk)
   b). Data encryption. (1 mk)
2. What is an embedded computer? (2 mks)
3. a) State and explain the three mouse techniques. (3mks)
   b) Give one reason why a computer is referred to as an electronic device (1mk)
4. List four fields which would be expected in a database file of information about students in a school. (2mks)
5. State three changeover strategies that can be used to move from the old system to a new one. (3mks)
6. What is the meaning of the following as used in word-processing: (2mks)
   a) Word wrap
   b) Drop cap
7. Explain the meaning of legends as used in Excel. (1 mk)
8. a) List any four examples of DTP software available in the market today. (2

mks)

b) What is the difference between the pasteboard and printable area? (2 mks)

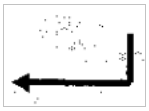
9. What is the difference between looping and selection? (2 mks)

10. Name the stage of program development cycle when: (2 mks)

i) A user guide would be written
ii) A programmer dry-run the code.
iii) System charts would be drawn
iv) Staff training is done.

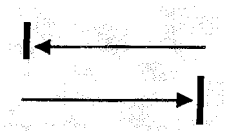
11. Name and explain the function of the following key symbols.

(i) (2mks)



(ii) (2mks)

(iii) (2mks)



12. Explain four reasons which make microcomputers suitable for personal computing work (2mks)

13. Explain the following terms as used in Ms Excel spread sheet package. (3mks)

a) Range
b) What if analysis
c) Automatic recalculation

14. Explain the following computer crimes (2mks)

a). Fraud
b). Alteratio

15. State and explain the three parts of a task bar. (3mks)

SECTION B (60 marks)

Answer question 16 and any other three questions from this section in the spaces provided

16. a) Nakuru car rental firm leases its cars for Ksh 5000.00 per day. The managers give a discount based on the number of days that the car is rented. If the rental period is greater than 12 days then a 20% discount is given. Write a pseudo-code to accept a car number and the rental period, and calculate the total amount earned by the company when a car is leased. (5mks)

b) Use a flowchart to represent the above pseudo-code. (5mks)

c) Identify three advantages of using modular programming in system development.

(3mks)

d) Why is observation sometimes disadvantageous when used in fact finding? State two reasons. (2 mks)

17. a) State any two symptoms of the following computer work-related disorders and two methods of prevention.

(i) Computer vision syndrome. (4 marks)

(ii) Repetitive strain injury. (4 mks)

b) Explain any two factors that should be considered during output design. (2mks)

c) List six devices located under the cover of the system unit (3mks)

d) Differentiate between a compiler and an interpreter. (2 mks)

Complier	Interpreter

18. (a) Identify and explain three areas where computers are used to process data. (3mks)

b) Computers have evolved through a number of generations. List any 4 characteristics of the first generation of computers. (2mks)

c) Differentiate between Cache and Buffer memories. (2mks)

d) State three advantages of wireless communication. (3 mks)

e) Explain the following terms as used in data communication. (3 mks)

(i) Multiplexing

(ii) Bandwidth

(iii) Base band signal

f) Explain the use of these communication devices. (2 mks)

(i) Routers

(ii) Hub

19. a) Describe the following careers in the computing field. (3mks)

i) Computer Engineer

ii) Software Engineers

iii) Computer technician

b) (i) Give any four advantages of using a fibre optic cable in data transmission (4mks)

(ii) Name two types of fibre optic. (1 mk)

c) State the use of the following devices (2 mks)
i Light pen
ii) Graphics tablet.

d) Name any two advantages of solid-state memories over other storage media. (2mks)

e) List four factors to be considered when choosing an electronic data processing method. (4 mks)

20. a) List and explain the functions of computer buses. (3mks)

b) The formula = $B2 + C$4 is entered in cell C5 and then copied to DI0, Write down the formula as it appears in the destination cell. (2 mks)

c) Give two reasons why smaller computers like Laptops tend to be more expensive than Desktop computers (2 mks)

d) Giving an example, name three categories of post secondary institutions where one can advance computer skills after sitting for K.C S .E. (3 mks)

e) List four examples of
i) Third generation languages. (2mks)
ii) Object oriented languages. (2mks)

f) Define the term ergonomics (1 mk)

STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

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1. SURA MBILI HIGH SCHOOL who were contesting for the over roll post of "Headboyship" amongst other posts in the 4-classes; Form I, II, III and IV. Take up the spirit of the school's news reporter and a computer studies student and assume you are now working in the office of the School Election Committee and enter the data below in spreadsheet application software exactly as it appears. (a) The worksheet below shows the votes gathered by 12 students of printable lines and borders.
Save it as Sura Mbili Election 1 and close. (5 Mks)

A	B		C	D	E	F	G	H	I	J
1										
2										
3		SEX	REG. FEE	FORM I VOTES	FORM 11 VOTES	FORM 111 VOTES	FORM IV VOTES	TOTAL VOTES	AVERAGE	
4	**Students Per a Class**			**346**	**350**	**290**	**415**			
5	**CANDIDATE NAME**									
6	Mandela Morphat	Male	200	42	40	45	79			
7	Siminyu Wanjala	Male		24	20	18	4			
8	Kiptoo Rotich	Male	200	24	25	11	30			
9	Saida ShidaSaidi	Female	200	20	23	26	1			
10	Patel Rishyankee	Male	200	45	10	1	36			
11	Bibiana Kombora	Female		0	30	15	76			
12	Ogolla Victor	Male	200	54	60	40	69			
13	Ole Arap Tumboei	Male		49	10	11	0			

b) (i) Retrieve Sura Mbili Election 1 and enter the title **"SURA MBILI HIGH SCHOOL** in cell Al and a sub-title **"Post of Headboyship General Election"** in cell A2, Bold, font size 18 then Centre across the spreadsheet. (2mks)

(ii) Insert a header reading "Mawesse Joint Mock-Marakwet West District" and a footer indicating the name of your school. (2mks)

(iii) Saida Shida Saidi was nullified hence remove her record (1mk)

(iv) The votes for Bibiana Kombora for Form 1 was incorrect and should be adjusted to 1 Vote. Update her record (Imk)

(c)

(i) Compute the Total votes for Mandela Morphat and copy the formula down the list. Write down the formula used on the answer sheet provided (2mks)

(ii) Calculate the total Votes for Form 1 class and copy the formula across the list. Write down the formula used on the answer sheet provided (2mks)

(iii) Get the average votes for each candidate and for each class. Write down the formula used on the answer sheet provided (2mks)

(iv) Move the record of Kiptoo Rotich so as to be between Iduli Shibuta Ann and Shiundu Martin. (2mks)

(d) Save the workbook as 'Election 2 and close it.

Retrieve Election 2 workbook and enter a formula in cell C20 which will help count all the candidates who did not pay for registration fee. Type a label against it in cell B20 "Non Registered" write down the formula used on the answer sheet (3mks)

(e) Registration fee was projected to be raised to 39%.

(i) Insert a new blank colunm after Reg.Fee and enter the label % increment in cell D

And a value B9 in cell C5 (2mks)

(ii) In cell D6 use an absolute cell referencing to predict the newly proposed Registration Fee for each candidate. Write down the formula used on the answer sheet provided (3mks)

iii) Using a suitable formula in cell E22, determine the sum of spoiled votes for Form I class and copy the formula to complete for other classes too. Write down the formula used on the answer sheet provided (2mks)

(f) By carefully entering a suitable formula on cell E23 and E24 determine:

(i) Number of candidates whose votes were 30 and above in Form I then copy the Formula across to Form IV. Write down the formula used on the answer sheet provided (2mks)

(ii) The highest votes in each class. Write down the formula used on the answer Sheet provided

(2mks) Save it as Election 3

g) For one to be a Head Boy, must gather over 45 votes in Form I, over 50 votes in Form II, over 25 votes in Form III, over 60 votes in Form Iv and at least a total of 200 votes and above from the 4 classes.

(i) Introduce a formula in cell K6 and copy it down the list to determine the winner by a remark "Head boy winner" or" Looser". Write down the formula used on the answer sheet provided (3mks)

(ii) Plant a formula in cell L6 which will remark votes as below by basing on Average of votes for each student: Write down the formula used on the answer sheet provided

55 vote\and above - "Head boy"
Between 40-55 -"Prefect"
Below 40 -"Unpopular" (3mks)

(iii) Filter out a list of prefects only including Head boy. Copy this record and paste in Sheet 2. Rename this sheet as 'prefects'. (2mks)

(iv) Sort your records in descending order of average votes for candidates. (1mk)

Save it as Finalized Election and close.

h)

(i) Open "Finalized Election" and use its data to plot a column graph on its own sheet showing the candidates name and the average votes only. (2mks)

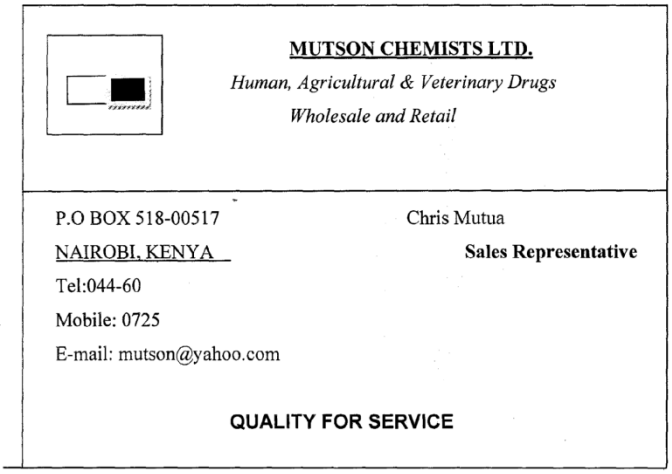
(ii) Rename this sheet as 'Graph (½ mk)

i) Label:

The chart title as "Head Boy's Election 2012" (1mk)
Y-axis and X-axis appropriately (1mk)
Legend position to the right. (Imk)
Save the changes to your workbook.

j) Print Sura Mbili Election 1, Election 2, Election 3 and Finalized Election; sheet 1 and sheet 2 ALL in landscape orientation. (2 ½ mks)

2. (a) Use a DTP software to design the following (30mks)



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b) Fit 8 copies of the design on a single page (16 mks)
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ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
2 ½ Hours

SECTION A: (40 MARKS)
Answer All questions in this section

1. For each of the following generation of computers. State the technology used to control internal operations (2mks)
   (i) 1st Gen..
   (ii) 2nd Gen
   (iii) 3rd Gen.
   (iv) 4th Gen
2. Explain the control structures given below:
   (a) Sequence (1mk)
   (b) Selection (1mk)
   (c) Iteration (1mk)
3. Distinguish between cold and warm booting. (2mks)
4. a) Define Word processing. (1mk)
   (b) Explain the following word processing features. (1mk)
   (i) Word Wrap
   (ii) Template
5. Explain the meaning of the following terms
   (a) Encryption (1mk)
   (b) Eavesdropping (1mk)
6. Convert 842_{10} to hexadecimal. (2mks)
7. State under which category of keyboard keys the following keys would fall.
   (i)

   T (1mk)

(ii) F_2 (1mk)

8. Choice of a programming language is very important during computer systems development

Based on this statement, explain the following languages.

(a) Machine Language (1mk)

(b) High level language (1mk)

9. Explain the meaning of the terms below as used in data communication.

(i) Attenuation (1mk)

(ii) Multiplexing (1mk)

10. While purchasing computers for his school, the Principal of Matopeni High school Preferred a 6 months warranty option other than that of 1 year from the selling company.

List TWO factors that might have led him to do so. (2mks)

11. (a) A worksheet contains data as shown below

Cell	A1	A2	A3	A4	A5	A6
Entry	75	50	62	84	42	

Write the formula to be entered inn cell A6 to display the sum of values above 60. (2mks)

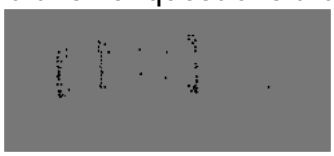
(b) Explain the following disk management activities

(i) Disk Defragmentation (1mk)

(ii) Disk Partitioning (1mk)

(iii) Disk Scanning (1mk)

12. Study the diagram below and answer questions that follow:



(a) Identify the port shown in the diagram. (1mk)

(b) Give TWO reasons why the identified port in 12(a) above finds widespread use in computer systems. (2mks)

13. (a) What is data communication? (1mk)

(b) List THREE advantages of fibre optic cables. (3mks)

14. Carry out the following arithmetic in twos complement. (3mks)

$48_{10} - 12_{10}$

15. (a) Name the stage of systems development life cycle where questionnaires are use. (1mk)

(b) State ONE advantage and ONE disadvantage of using questionnaires at the stage

In 15 (b) above.

(i) Advantage (1mk)

(ii) Disadvantage (1mk)

SECTION B (60 MARKS)

Answer question 16 and any other THREE questions from this section.

16. (a) Define the following terms as used in programming. (3mks)

(i) Array

(ii) Pseudo code

(iii) Algorithm

(b) Write a pseudo code and draw a flowchart for designing a program which enables a man to work out the cost of covering the floor of his house with carpet tiles. Data is supplied as follows:

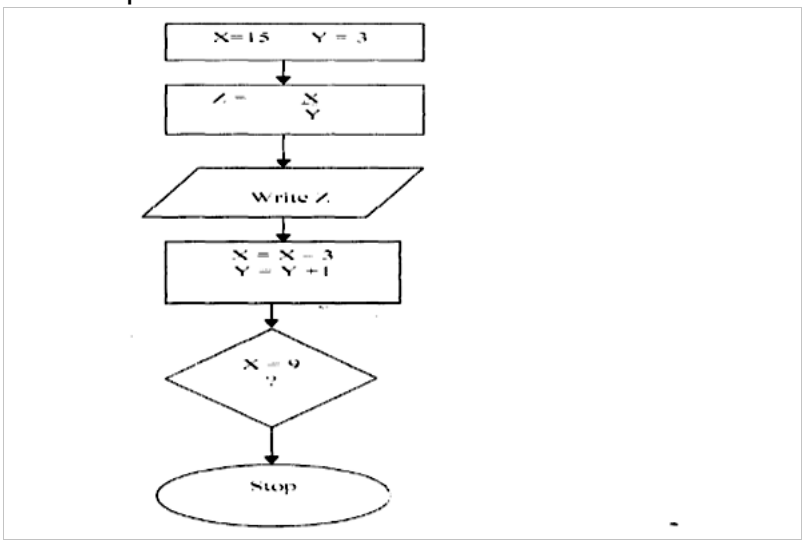
(i) The number of rooms in the house equals to five

(ii) For each room;

- The size of a tile (SOT) and cost of a tile (COT) to be used in that room
- The length (L) and breadth (B) of the room

For each room, calculate the number of tiles (NOT) required as well as the cost (cost) of the tiles. Print the total cost (TL cost) of tiles required. (8mks)

(c) State the output of the flowchart below. (4mks)



17. (a) What is a Uniform Resource Locator? (1mk)

(b) Using well labeled diagrams, explain star, bus and ring network topologies. (9mks)

(c) (i) Differentiate between logical and physical files (2mks)

(ii) Explain the following data processing files. (3mks)

(a) Master file

(b) Transaction file

(c) Backup file

18. (a) Explain the terms as used in database. (3mks)

(i) Primary key

(ii) Entity

(iii) Record

(b) Computers process digital data gotten through a process called coding. State and explain **THREE** coding systems. (6mks)

(c) Describe **THREE** computer crimes taking place in society citing control measures that can be put in place to curb them. (6mks)

19. (a) Define virtual reality (1mk)

(b) Explain the following interactive sensory equipment used in virtual reality.

(i) Head gear (2mks)

(ii) Body suit (2mks)

(c) (i) What is artificial intelligence? (1mk)

(ii) State and explain **THREE** components of an expert system. (6mks)

(d) Most computerized security systems make use of biometric analysis. Name Physical features of human being that can be considered for this analysis. (3mks)

20. (a) Define an information system. (1mk)

(b) State **TWO** circumstances under which interviews may be used as a method of gathering information (2mks)

(c) (i) What is a computer laboratory? (1mk)

(ii) Give **TWO** measures that should be observed when using the computer laboratory to protect computers against loss of data (2mks)

(d) (i) State **THREE** factors you would consider before enrolling for an ICT Course in an institution of higher learning. (3mks)

(ii) Give **TWO** duties of each of the following computer professionals. (6mks)

(a) Computer Programmer

(b) Systems Analyst

(c) Computer Technician

ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

1. (a) Create a folder named **Harper**. Type the document below exactly as it appears using a word processing package and save it as MOCKING_BIRD in the folder created. (8mks)

TO KILL A MOCKINGBIRD

To Kill a Mockingbird is primarily a novel about growing up under extraordinary circumstances in the 1930s in the Soutern United States. In *To Kill a Mockingbird*, author Harper Lee uses memorable characters to explore civil rights and rasism in the segregated Southern United States of the 1930s.

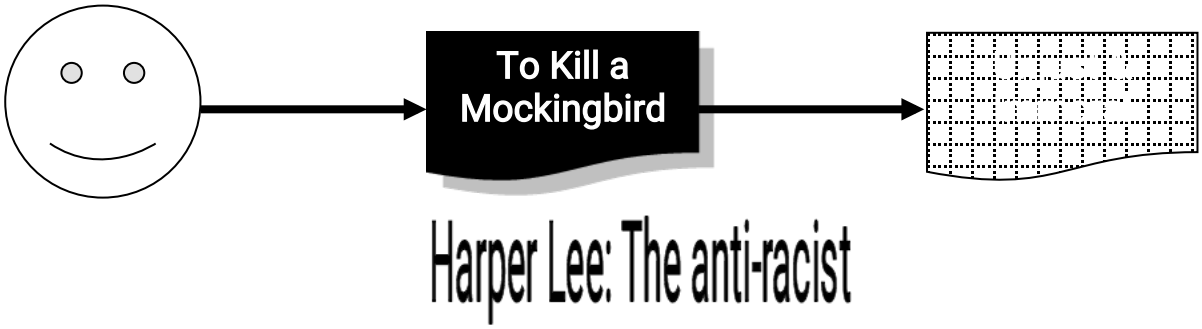
Told through the eyes of Scout Finch, you learn about her father Atticus Finch, an attorney who hopelessly strives to prove the innocence of a black man unjustly accused of rape; and about Boo Radley, a mysterious neighbor who saves Scout and her brother Jem from being killed.

The Three Most Important Aspects Of To Kill A Mockingbird:

The title of To Kill a Mockingbird refers to the local belief, introduced early in the novel and referred to again later, that it is a sin to kill a mockingbird. Harper Lee implies that it's unjust and immoral.

The events of To Kill a Mockingbird take place while Scout Finch, the novel's narrator, is a young child. But the sophisticated vocabulary and sentence structure of the story indicate that Scout tells the story many years after the events described, when she has grown to adulthood.

To Kill a Mockingbird is unusual because it is both an examination of racism and a bildungsroman. Lee examines a very serious social problem. Lee seamlessly blends these two very different kinds of stories.



Harper Lee: The anti-racist

(b) Save a copy of the document created above as "MOCKING_BIRD 2" in the folder created in (a) above and use to answer parts (c) to (e). (1mrk)

(c) (i) Insert a drop cap to the first letter of the first paragraph, dropping it by two lines. (2mks)

(ii) Apply bullets to the paragraphs under the second heading. (3mks)

(iii) Change the first paragraph under the first heading to three columns. (3mks)

(iv) Format the heading "***TO KILL A MOCKINGBIRD***" as follows: (4mks)

- **Alignment**: Right
- **Font type**: Arial black
- **Font size**: 18
- **Font style**: Underline

(v) Proofread the document to correct spelling mistakes (1mrk)

(vi) Set the page to A4 size, with the following margin specifications: (3mks)

- **Top:** 0.63"
- **Bottom:** 0.6"
- **Left:** 0.6"
- **Right:** 0.63"

(vii) Set the line spacing of the last two paragraphs starting with "To Kill a Mockingbird is unusual..." to 2.0. (2mks)

(viii) Insert a header bearing your name and admission number. (2mks)

(ix) Move the 1st paragraph under the second heading to come below the drawing. (2mks)

(x) Set a hanging indent to the 2nd paragraph which starts with "To Kill a Mockingbird is unusual…" (2mks)

(xi) Replace all words written "racism" with "racial discrimination" (2mks)

(xii) Set the 1st paragraph which starts with "*To Kill a Mockingbird* is primarily a…" so as the text is aligned to the right. (1mk)

(e) Automatically paginate the document using the format **"page x of y"** (1mk)

(f) Apply a page border to the whole document with the following formats: (3mks)

- **Style**: Double line
- **Border color**: Blue
- **Border width**: 2¼pt

(g) (i) Create a table at the end of the document created in (b) above and enter the following data (3mks)

BOOK_NO	BOOK_TITTLE	AUTHOR	PRICE
B0-02	In Cold Blood	Truman capote	875.00
B0-09	Roman Holiday	Gregory Peck	955.00
B0-03	The catcher in the Rye	J. D. Salinger	650.00

(ii) Insert the title "RELATED BOOK NOVELS" as the first row of the table. Align the title to the center (2mks)

(iii) Apply borders to the whole table (1mk)

(iv) Using a formula, calculate the average cost of books in the table. (2mks)

(h) Print the documents; MOCKING_BIRD and MOCKING_BIRD 2(2mks)

The tables below, **STUDENT, SUPERVISOR** and **SUPERVISIONS** are extracts of records kept in MOKASA UNIVERSIRY for project supervisions.

Student Number	Name	Gender	Project Fee Paid
C001	Ken	M	32000
C002	Joy	F	27800
C003	Lero	M	18900
C004	Moth	F	42700
C005	Ben	M	45000

Table 1 STUDENTS TABLE

Supervisor Number	Name	Department
L220	Alex	Mechanical
L230	Sakaja	ICT
L240	Roy	Electronics
L250	Mati	Education
L260	Joy	Human Resource

Table 2 SUPERVISOR S' TABLE

Supervision Number	Supervision Date	Student Number	Supervisor Number	Project Title
100	12/03/2015	C001	L220	Java
200	22/03/2015	C003	L230	Website
300	17/03/2015	C004	L240	Robotics
400	02/03/2015	C001	L220	Java
500	18/03/2015	C002	L240	Robotics
600	12/03/2015	C004	L230	Java
700	11/03/2015	C002	L250	Database
800	12/03/2015	C003	L220	Java
900	12/04/2015	C005	L250	Database
1100	12/04/2015	C002	L250	Database

Table 3 SUPERVISIONS TABLE

a) Using a database application software, create a database file named **PROJECT** (1mk)

b) Create three tables named **STUDENT, SUPERVISOR** and **SUPERVISIONS** as shown above.
(9mks)

c) Set the primary key for each table.
(3mks)

d) Create relationships among the tables. (2mks)

e) Enter the data in the table **STUDENT, SUPERVISOR** and **SUPERVISIONS** as shown above.
(9mks)

f) Create a form for each table above.
(3mks)

g) Create a query named **BALANCE** to display student name, Gender, project fee balance per student, given that the total project fee is **Ksh.50000**.
(4mks)

h) Create a query named **BALANCE2** to display students' Names, project title whose fee balance is above **Ksh.20000.** .
(4mks)

i) Create a bar chart based on question (h) to display students Name and balance. Save as **BALANCE CHART.**
(3mks)

j) Create a report named SUPERVISION to display Students Names, Project Title, names of supervisor, and supervision Dates. The records in the report should be grouped by students' Name and the number of supervisions by each student should be displayed. (5mks)

k) Title the report as supervision per lecturer.
(2mks)

l) Print the following:

- **Tables**: STUDENT, SUPERVISOR and SUPERVISIONS
  (2mks)
- **Queries**: BALANCE and BALANCE2 (2mks)
- **REPORT**: SUPERVISIONS

(1mk)

FRIENDS SCHOOL KAMUSINGA KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
Paper 1
THEORY
2 ½ Hours

SECTION A (40 MARKS)

Answer all the questions in this section

1. State **four** different parts that make up a computer. (2 Marks)
2. a) What is meant by the term spyware? (1 Mark)
   b) State **two** ways of acquiring software
3. Briefly explain the emerging trends in micro computer technology in relation to size. (1 Mark)
4. a) Distinguish between impact and non impact printers. (2 Marks)
   b) MICR and OMR
5. Describe the following terms
   a) Webpage (1 Mak)
   b) Blog (1 Mark)
   c) Hyperlinks (1 Mark)
   d) Web portal (1 Mark)
6. List **four** stages of data collection. (2 Marks)
7. Explain the role of the following ICT specialist
   a) Computer technician. (2 Marks)
   b) Information systems manager. (2 Marks)
8. a) Give **four** advantages of DTP over a word processor. (2 Marks)
   b) Differentiate between the following
   i) Kerning and tracking (2 Marks)
   ii) Margins and column guides (2 Marks)
9. Distinguish between defragmentation of a disk and partitioning of a disk with reference to operating systems (2 Marks)
   Partitioning
   Defragmentation
10. Headache, back and neck pain may result from use of computers. State how each of them can be minimized (2 Marks
    Headache
    Back and neck pain
11. Explain the meaning of the following terms as used in computer programming. (2 Marks)

i) Syntax
ii) Semantics

12. a) State **two** methods or tools that an analyst may use in a system design task. (2 Marks)
b) Give **two** reasons why documentation must be done at each phase in system development cycle. (2 Marks)

13. Explain the functions of the following network devices. (2 Marks)
Router
Gateway

14. Differentiate between baseband and broadband signal as used in networking (2 Marks)
a) Baseband signal
b) Broadband signal

15. Define the term simulation (1 Mark)

SECTION B (60MARKS)
Answer question 16 and any other three questions from this section

16. Kazungu house-ware suppliers pays 10% commission on sales that are above Kshs.20,000 and 4% on any sales that are less than this target. If the sales salesman sells in cash, he gets an extra 5% commission on total sales, else no commission if on credit. (7 Marks)a) Write a Pseudo – code for a program that would;
i. Prompt a user for sales, terms of sale, and name of salesman/lady.
ii. Calculate the commission and total amount.
iii. Display the commission and total amount for a particular salesman.
b) Draw a flow chart for the above Pseudo – code (8 Marks)

17. a) What is the hexadecimal equivalent of 747_8 (3 Marks)
b) Use one's compliment to solve the following sum: (2 Marks)
-6_{10}
c) State **two** reasons for using binary system in digital technology. (2 Marks)
d) Explain the term attenuation as used in networking. (2 Marks)
e) Explain the following terms as used in fibre optic cables. (4 Marks)
i) Single mode
ii) Multi-mode
f) Convert 7.125_{10} to its binary equivalent. (2 Marks)

18 i) Name **four** data types used in spreadsheets. (2 Marks)
ii) Outline **five** advantages of an electronic spreadsheet over the traditional ledger. (5 Marks)
iii) What is a chart wizard in spreadsheets? (1 Mark)
iv) Name and explain the use of the following commands found in the spell check dialog box in reference to word processing (6 Marks)

a) Change
b) Ignore once
c) Add

v) What is a template in word processing? (1 Mark)

19 i) Describe **three** ways in which computers have positively impacted on education. (3 Marks)

ii) The traffic lights serve as output devices for a computerized traffic system. Name the appropriate input device for this system. (1 Mark)

iii) State **three** advantages of computer based simulation. (6 Marks)

iv) Differentiate between a software engineer and a computer engineer. (2 Marks)

v) Name **three** duties that are carried out by a web administrator. (3 Marks)

20. i) List and briefly describe **three** components of a database system. (3 Marks)

ii) Define the following terms as used in a database

a) Attribute (1 Mark)
b) Database model (1 Mark)
c) Macro (1Mark)

iii) Explain **three** types of database models. (6 Marks)

iv) State **three** objectives of normalization. (3 Marks)

FRIENDS SCHOOL KAMUSINGA KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

(a) Using a word processing package, type the passage below as it appears, proofread and save it as **Networking _1** in a removable storage media (22mks)

NETWORKING BASICS

The Hardware

Network Interface Cards (NIC)

Firstly, each computer must have a network card

Computers that run Windows generally use PCI NICs (Network Interface Cards), although there are other types available, including USB NICs. The PCI NICs tend to retail very cheaply and many newer PCs and laptops come with 10/100 NICs built in

Switches and Hubs

Secondly, you need a piece of hardware to connect your computers together. There are various options:

- A hub. In a hub, any information arriving in the hub from any computer is sent to

every computer connected to the hub. this is the most basic form of network connection device and has largely been superseded by

- A switch. The switch learns which computer is connected to each port, so when it receives a data packet destined for a specific computer the switch will only send that data packet to that specific computer.

The alternative to buying a switch is to use a special cable called a cross-over cable. This is a specially wired cable which will allow you to connect two computers directly, however in my experience all but one situation where a cross-over cable has been initially bought it was eventually been replaced with a switch.

Some switches have printer ports on them, which is useful for windows but less so for RISC OS, unless you have a printer that you have a RISC OS printer driver for, more of this later.

Routers

Routers are special types of switches which make a direct connection to the internet and allow all computers to access the internet via the router. They usually include firewalls, DHCP servers and can have additional functionality such as web page filtering and VPN termination. If you wish to just connect RISC OS computers to the internet, this is perhaps the best way to go. Routers can be purchased which will access ADSL or Cable broad band or even 56k dial-up lines.

Cables

Thirdly, you will need network cables. The maximum length between any two pieces of hardware (computer-switch or computer – computer) is 100m. They can come in all sorts of colours and can be hidden in walls, behind skirting boards and through ceilings. Note that unless you are connecting two computers together directly, you will need normal cables and not cross-over cables.

Network speeds

With cabled networks there are three main speeds

- 10 megabit or 10-base – T
- 100 megabit or 100 base – T
- 1 gigabit or 1000 base – T

(b) Save the changes of this document. Copy the document and paste it in a new document. Set the whole document to have a justified text alignment. Save it as **Networking _2** (4mks)

(c) Centre the heading and apply border and shading on it (6mks)

(d) Double line space the whole document (2mks)

(e) Double indent the router paragraph by 1.5” (6mks)

(f) Set margins as follows; (4mks)
(i) Left margin 2”
(ii) Right margin 2.5”
(iii) To margin 2”
(iv) Bottom margin 2.5”

(g) Insert document header as NETWORKING BASICS NOTES and footer as HARDWARE REQUIREMENTS. (4mks)

(h) Save the changes of this document (1mk)

(i) Print Networking _1 and Networking _2 (2mks)

QUESTION TWO

(a) Create a new database, save it on a removable storage medium and name it **school database**

(b) Create a Table in the *school database* with the following (3mks)

FIELD NAME	DATA TYPE	FIELD SIZE/FORMAT
ADM - NO	Text	10
Name	Text	15
Surname	Text	15
Tel - No	Number	Long Integer
Date of Birth	Date/time	Medium date
Fee - Paid	Currency	Currency
Foreigner	Yes/No	Yes/No

(c) Make the "ADM _ Number" Field as the Primary Key (2mks)

(d) Save the table as Student's Table (2mks)3

(e) Open the "Students Table" and enter the following records (3mks)

ADM - NO.	Name	Surname	Tel - No.	Date of Birth	Fee - paid	Foreigner
4567	John Maina	Muiru	55-67543	19/09/1990	25000	No
4576	Mary Nthenya	Mutua	44-23456	20/12/1991	27000	No
4398	Mark Okech	Otieno	22-65473	13/03/1992	20000	No
5678	Peter Rick	Ben	11-76742	15/06/1994	29000	Yes
4378	Joan Liz	Patel	13-89734	18/09/1990	26000	Yes
4897	Peter Amos	Ben	33-37482	17/04/1993	20000	Yes
4643	Muoka Muoki	Nzioki	44-45362	12/12/1991	23000	No

(f) Insert the record given below as record 4 (2mks)

4120 Rabecca Kalewa Ben 44-24242 13/10/1900 27000 No

(g) Delete Mary Nthenya record from the database file (2mks)

(h) Sort the table in Ascending order by surname (2mks)

(i) Move the ***Date - of - Birth*** and ***Tel - No*** fields so that the ***Date - of - Birth*** field is now directly after the ***surname*** field (4mks)

(j) Change the field size of the ***Surname*** to 20 (1mk)

(k) (i) Create a Form with all fields on the Students Table (2mks)

(ii) Name the form ***Students Entries*** (1mk)

(iii) Insert unbound control named fee - Balance to show the fee balances of all students given the total fee is **35000** and Fee - balance = Total _Fee –

Fee _Paid (4mks)

(l) Insert a picture in the form in way that all text is visible (3mks)

(m) (i) Create a report based on the Student's Table showing the Fields ***Name, Surname*** and ***Tel No***. (3mks)

(ii) Name the report ***Telephone list*** (1mk)

(n) Insert a picture in the report Header (2mks)

(o) (i) Create query _1 showing all fields of those students whose surname is Ben (4mks)

(ii) Create query _2 showing all fields of those students born after 1991 (3mks)

(iii) Create query _3 showing only the Student's Name, Student's Surname and Student's Date of birth (3mks)

(p) Print ***Students tables Entries form, Telephone list, query_1, query_2 and query_3***. (3mks)

MOI GIRLS HIGH SCHOOL – NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
(Theory)
Paper 1
Time: $2^{1}/_{2}$ Hours

SECTION A (40 MARKS)

Answer all Questions in this section in the spaces provided

1. Differentiate between Core 2 Duo and Quad Core processors in terms of internal architecture (2mks)

2 (a) Explain why Gas Plasma displays are preferable to LCD monitors in entertainment and social places (1mk)

(b) State **three** advantages of LED over incandescent and fluorescent illuminating devices. (3mks)

3. Most distributions of Linux operating system are available to users under General Public Licence (GPL)

(a) Explain the meaning of GPL (1mk)

(b) State **four** examples of Linux distributions available under GPL (2mks)

4. Differentiate between compatibility and interoperability in relation to computer software and hardware. (2mks)

5 (a) Define the term "system registry" (1mk)

(b) State **three** causes of system registry failure (3mks)

6. Explain how you would unfreeze a computer running windows which has stopped responding to commands (3mks)

7. List **four** circumstances under which a user may use the Save As Command instead of the Save Command (2mks)

8. State **four** problems that may occur during printing and how to solve them. (4mks

9. Highlight **three** Acts of Parliament or laws that govern the use of ICT in Kenya (3mks)

10. Work out the following

(a) $1110.101_2 - 101.01_2$ (2mks)

(b) Convert EFE_{16} into decimal form (2mks)

11. State **four** operations you would undertake to safeguard data integrity (2mks)

12. (a) What is system implementation (1mk)

(b) State **three** activities that are done during system implementation (3mks)

13. Differentiate between a router and a gateway. (2mks)

14. Define the following terms (2mks)

(a) Teletext:

(b) Videotext:

15. List **three** types of job opportunities that are available in the field of computer hardware . (3mks)

SECTION B (60MKS)

Answer question 16 and any other three questions from this section

16 (a) Design a flowchart for a simple program that can be used to categorize

people according to age. If the person is above or equal 18 years, output "Adult" otherwise output "Young" (8mks)

(b) What is the difference between looping and selection. (2mk

(c) Name the stage of program development cycle when:

(i) A user guide would be written (2mks)

(ii) A programmer dry-run the code

(iii) System charts would be drawn

(iv) Staff training is done

17. A school has decided to network its computers so that it can distribute information over a local intranet. The school also intends to connect the local network to the internet.

(a) Describe three different topologies that could be used to network the computers. (6mks)

(b) The various services are to be provided by servers. Briefly describe the services provided by (6mks)

(i) Print server

(ii) Internet server

(iii) Intranet server

(c) Electronic mail (E-mail) is very popular. Explain how you would prepare and send a message using e-mail. (3mks)

18. (a) Explain how you can defend your files from the following risks (8mks)

(i) Fire in the computer

(ii) Hackers

(iii) Virus attack

(iv) Disgruntled ex-employees

(b) Differentiate between private data and confidential data (4mks)

(c) List **three** sources of viruses (3mks)

19. (a) Describe the following careers in the computing field (3mks)

(a) Computer Engineers

(b) Software Engineers

(c) Computer Technician

(b) Identify any **three** duties of an information system manager (3mks)

(c) Giving an example, mention **three** categories of places where you can advance your computer skills after sitting for your K.C.S.E (3mks)

(d) Mention any **four** formatting features used in Ms Word Application (3mks)

(e) Define the term electronic spreadsheet (1mk)

(f) Explain the following terms as used in MS Excel spread sheet package (3mks)

(i) Range

(ii) What if analysis

(iii) Automatic recalculation

2.0 (a) Compute the value of x in the following expressions (4mks)

(i) $24.35_{10} = X_2$

(ii) $6AB_H = X_{10}$ (2mks)

(b) Using twos complements compute the following using 8 bits(6mks)

$20_{10} - 25_{10}$

(c) Write these abbreviations in full text (3mks)

(i) BCD

(ii) EBCDIC

(iii) ASCII

MOI GIRLS HIGH SCHOOL – NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

Answer question one (compulsory)

1. (a)Type the following table and save as LIST.DOC in the diskette provided: Adjust your font type to Times New Romans, font size 12. Use the auto sum feature to get the sum in the fees column.

Name	Box Number	Town	Form	House	Fees
Wanjala Naswa	132	Namalala	2W	CHUI	8575
Abdalla Ali	100	Bamburi	3R	NDOVU	9250
Mulwa Norr	50	Matuu	1W	SIMBA	11500
Mwangi Mama	500	Kairuthi	4R	CHUI	10500
Kiptoo John	100	Tindinyo	2R	NDOVU	8575

(20 Marks)

(b) Using the third row entries in the tables provided in (a) above, type the following letter. Include all the formatting features in the letter. Justify the first paragraph of the letter. Save as **LETTER.DOC** in the diskette provided.

Kula Mawe High Schol,
P.O Box 1000,
Kula Mawe.

30th November 1998.

……
P.O Box……..
……

Dear……..

RE : ADMISSION

We are pleased to offer you a place in this school in form……. Your house will be

……The amount of fees required is Ksh……. The school opens on 5th January, 1999.

You are required to bring the following items:

Beddings	Stationery
1. 1 mattress	1. Text books
2. 2 blankets	2. Exercise books
3. 2 bed sheets	3. 1 mathematical set

4. 1 bedcover 4. 1 ruler
5. 2 pillow cases 5. 1 Bible/Koran

Yours faithfully.

Henry Mkubwa
(PRINCIPAL)

(30 Marks)

(c) Print both **LIST.DOC** and **LETTER.DOC.**

Answer either question 2 or 3

KOROGOCHO ACADEMY
FORM THREE END YEAR EXAM MARKS

STUDENT NAME	ENGLISH	KISWAHILI	MATHEMATICS	HISTORY
Ayuku Aseka	70	60	40	50
IrunguWambua	50	70	60	40
Khalifa Mudigo	80	40	50	60
Nosieta Soita	30	75	60	50
Onyango Otieno	40	55	70	60

2. (a) (i) Create a worksheet with the following entries:
(ii) Adjust column width where necessary to display all entries in detail. Validate the cells to accept ONLY numerals between 0—100 and return a comment **"Please enter a number between 0 and 100"** whenever an out of range error occurs. Save the worksheet as MARKS1. (11 Marks)

(b) Obtain the following:
(i) total score for each student
(ii) mean score for each student
(iii) highest score per subject
(iv) standard deviation per subject
(v) rank for each student
(vi) the grade for each student based on the following information.

MEAN	GRADE
75 – 100	A
70 – 74	A-
65 – 69	B+
60 – 64	B
55 – 59	B-
50 54	C+
45 – 49	C
40 – 44	C-

On the paper provided write the formula for each activity above.
Save your worksheet as MARKS 2. (22

Marks)

(c) Insert a new row for Chege Kisilu between Ayuku Aseka and Irungu Wambua. Enter his scores as 60.
50, 80, and 20. Save your worksheet as MARKS 3. (3 Marks)

(d) Format the ranges with values for mean score and standard deviation to display results to 3 decimal places. Save your worksheet as MARKS 4. (4 Marks)

(e) Select a free cell and enter 10%. Use the value entered to increment the mean score of each student. Save as MARKS 5. (10 Marks)

(f) Print MARKS 2, MARKS 3, MARKS 4 and MARKS 5.

3 **Database**

A Jua Kali Association in Nairobi created a database file for their members. In addition to entering a members' numbers and names, each record contained a date of registration of each member, membership fees paid and title of the activity.

(a) Create a database file structure called JUADAT1 using the information given in Table 1. The field names should match those of the data provided. Choose an appropriate primary key. Save the table as JKALI. (15 Marks)

(b) Append the data in Table 1 on the structure created in (a) above (10 Marks)

(c) Sort the records in JKALI on the fields you have defined for **activity** and **name** in ascending order. Save the table as JKALI2. . (4 Marks)

(d) Create a report of the records in JKALI. The report should contain the following fields: Names, date of registration, and title of the activity. The report should sum up all the fees paid. The page title of the report is "JUA KALI REGISTRATION". Save the report as JUAREPORT. (15marks)

(e) Use the data from JKALI to create a query file to extract all the records whose activity is
"Blacksmith". Call the query JUAQUERY. (6 Marks)
Write the query on the paper provided

(f) (i) Print the structure of the table JKALI
(ii) Print the records in JKALI, JKALI2 and JUAQUERY

MEMBERSHIP NUMBER	NAMES	REGISTRATION DATE	REGISTRATION FEES	ACTIVITY
97PO3 16	Fondo Maianda	12/20/97	100.00	BLACKSMITH
93PO464	Kori Blanda	08/21/93	50.70	SEWING

95PO218	Issa Munir	03/11/95	120.30	POTTERY
94PO177	Alvin Kanga	05/24/94	200.00	BLACKSMITH
97PO010	Adam Ayaila	09/08/97	150.00	PAINTING
95PO849	Valji Patel	10/28/95	240.00	WIRING
96PO748	Kamau Nderi	02/14/96	300.00	WIRING
92PO100	Otieno Omuka	04/18/92	124.50	BLACKSMITH

KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

451/1
COMPUTER STUDIES
PAPER 1
(THEORY)
TIME 2 ½ HOURS.

SECTION A: (40 MARKS)
Answer all the questions in this section in the spaces provided

1. (a) What is an embedded computer? (1mk)
   (b) State the main component that formed the basis for second generation computers. (1mk)
2. (a) Give **one** function of a main frame operating system which you would not expect to find in the operating system of a micro-computer. (1mk)
   (b) Name **four** examples of application software. (2mks)
3. List **four** of the fields which would be expected in a database file of information about school students. (2mks)
4. (a) Name **four** examples of document readers. (2mks)
   (b) Give **one** application for each of the input methods in 4.(a). (2mks)
5. Subtract 01011_2 from 11001_2 (2mks)
6. Explain the following computer crimes. (2mk)
   (i). Fraud
   (ii). Alteration

7. (a) Define
   (i). Firewalls. (lmk)
   (ii). Data encryption. (lmk)
8. Identify **three** advantages of using modular programming in system development. (3mks)
9. Explain the following terms as used in computing cycle. (3mks)
   (i) Fetch phase
   (ii) Decode phase
   (iii) Execution phase.
10. (a) Differentiate between Cache and Buffer memories. (2mks)
    (b) List and give the functions of computer buses. (3mks)
11. (a) Explain any **two** factors that should be considered during output design. (2mks)
    (b) Why is observation sometimes disadvantageous when used in fact finding? (1mk)
12. Outline **two** major functions of UPS in computer laboratory. (2mks)
13. (a) State the use of:
    (i) Light pen (1mk)
    (ii) Graphics tablet. (lmk)
    (b) Name any advantage of solid-state memories over other storage media. (1mk)
14. Outline **four** data types that can be entered into a spreadsheet. (2mks)
15. (a) Define virtual reality. (1mk)
    (b) List any **two** applications of virtual reality. (1mk)

SECTION B: (60 MARKS)

Answer question 16 and any other three questions from this section in the spaces provided.

16. (a) List **two** examples of
    (i) Third generation languages. (2mks)
    (ii) Object oriented languages. (2mks)
    (b) Define (2mks)
    (i) Object code
    (ii) Source code
    (c) Differentiate between a compiler and an interpreter. (2 mks)

    (d) A car rental firm leases its cars for Ksh..2500.00 per day. The manager giver a discount based on the number of days that the car is rented. If the rental period is greater than or equals to 7 days then a 25% discount is given. Write a peudocode to accept a car number and the rental period, and calculate the total amount earned by the company when a car is leased. (7mks)
17. (a) State any **three** duties of the following ICT personnel
    (i) Systems analyst. (3mks)
    (ii) Database administrator. (3mks
    (iii) Web master (3mks)
    (b) Name any **three** ICT courses offered in the Kenyan universities. (3mks)
    (c) Outline **three** advantages of telecommuting. (3mks)
18. (a) Define artificial Intelligence. (1mk)
    (b) Explain the application of artificial intelligence in the following areas (6mks)

(i) Natural language processing
(ii) Robotics
(iii) Expert systems

(c) Give any **three** symptoms of the following computer work-related disorders and two of their methods of prevention.

(i) Computer vision syndrome. (4mks)
(ii) Repetitive strain injury. (4mks)

19. (a) Define the term ergonomics (1mk)

(b) (i) Give any **three** advantages of using a fibre optic cable in data transmission. (3mks)

(ii) Name **two** types of fibre optic. (1mk)

(d) Explain the following terms. (3mks)
(i) Multiplexing
(ii) Bandwidth
(iii) Baseband signal

(e) Explain the use of these communication devices. (4mks)
(I) Routers
(ii) Hub

20. (a) Define Internet. (1mk)

(b) Describe the transmission of data over a telephone line (4 mks)

(c) Outline the 'line of sight' principle in wireless transmission. (2mks)

(d) The first column in the table below contains the formula stored in cell Fl0 of a spreadsheet.
Enter the formula as they would appear when copied to cell M20 of the same spreadsheet. (3mks)

Formula in F10	Formular in M 20
= D10* E10 = A $ 25 = 4 * D $ 13	

(e) (i) Differentiate between multiprogramming and multiprocessing. (2mks)
(ii) Give application areas of the following data processing modes. (3 mks)

(a) Batch
(b) ReaL time
(c) On line

KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

QUESTION ONE

1. (a) Assume you are the Director AMACO INSURANCE COMPANY LTD you want to update your customers on the current dues as per the insurance cover each client have. Use mail merge to write an official letter to **FIVE CUSTOMERS** informing them of this. Your letter must meet the following conditions.

i. Must have the header at the top with the company's name as the letter head. (2mks)

ii. Must have a footer at the bottom indicating the current date and time, left aligned. (2mks)

iii. The insurance will cover the vehicles and each client due, car number will not be the same. (2mks)

iv. The address lines will include
Title
Fist name
Last name
Address
Country
Car no plate
Amount due (14mks)

(b) (i) Prepare the table below in Ms word and then apply formatting as follows and save as MSS (8 mks)

MEYSA SYSTEMS AND SERVICES					
Technical information			**Action taken**		
Machine description	Problems found		Diagnostic checks	Solutions	
Compaq / evo	hardware	software	Memory video	1	Replacing vga
6522	☐	☐	Faulty component VGA CARD	2	Installing drivers
Desktop	No display			3	Rebooting system

(ii) Format the table with border line colour red and choose double line (5mks)

(iii) Shade the table to light green colour for the first two rows and light blue shading for the rest of the table (5mks)

(c) Type the paragraph below, save it as computer and apply formatting as stated (4mks)

Computer Program is a set of instructions that direct a computer to perform some processing function or combination of functions. For the instructions to be carried out, a computer must execute a program, that is, the computer reads the program, and then follows the steps encoded in the program in a precise order until completion. A program can be executed many different times, with each execution yielding a potentially different result depending upon the options and data that the user gives the computer.

(i) The text "computer program" should be the title, change its case to upper case font TREBUCHET

NAME	BASIC PAY	DEPARTMENT	AGE	STATUS
Peter	15000	Computer	34	Single
John	17000	Computer	44	Married
Kamau	19000	Finance	33	Divorced
Charles	21000	Research	33	Single
Johns	23000	Research	25	Single
Thomas	25000	Computer	26	Married
Ann	27000	Finance	28	Married
Susan	29000	Finance	29	Divorced
Tina	31000	Research	24	Divorced
Andrew	33000	Computer	40	Single
Hardy	35000	Finance	20	Married
Njeri	37000	Finance	43	Single
Kimani	10000	Research	15	Single
Silamtoi	15000	Finance	35	Divorced
Tina	35000	Computer	25	Married
Moses	59000	Research	33	Single
Miriam	70000	Finance	56	Divorced
Maurice	32876	Computer	70	Divorced
Alphie	43876	Research	98	Divorced
Albert	48098	Research	32	Single
Langat	6500	Computer	12	Single
Phenny	29000	Finance	70	Single
Hilda	32000	Computer	13	Married

MS size 16, colour green

(2mks)

(ii). Find the word 'instructions' look for its meaning in the computer dictionary and finally replace the word with new meaning from the dictionary . (3mks)

(iii). Format the whole paragraph to justified alignment shading colour light green (3mks)

2. (a) Create a data base called personnel and create a table named Department (5 mks)

(b) Create queries to determine (save each query using the alphabet numbers below)

i. Number of people with basic salary greater than 32,000= (5 mks)

ii. Number of people with basic salary less than 45,000= AND come from computer department . (5 mks)

iii. Names of people who are either married or single (4 mks)

iv. Those whose salary fall between 25,000/= and 50,000= (3 mks)

v. Those whose name begin with letter M or end in letter S (3 mks)

(c) (I) Create a query to compute the new salary if there is an increment of basic pay by 50% (7 mks)

(ii) Filter using query those who earn above 33000/= and aged between 39 and 70 (5 mks)

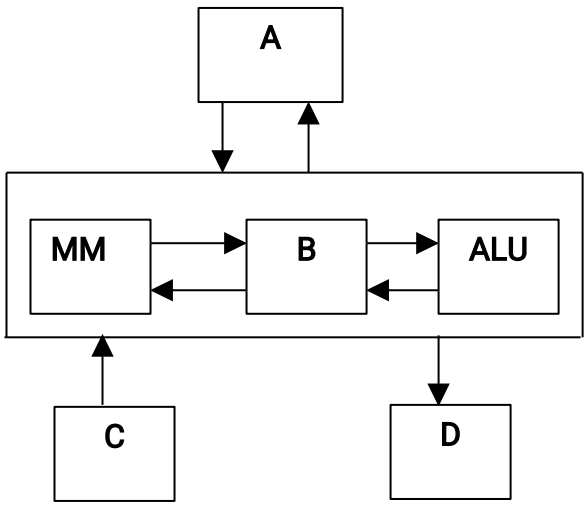
(d) (i) Create a form using form wizard using the Department table above. (3 mks)

MARANDA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES
PAPER 1
(THEORY)
TIME: 2½ HOURS

SECTION A. (40 MARKS)
Answer all questions in this section
SECTION A (40 marks)
Answer all questions in this section.

1. Name ***TWO*** computer crimes. (1mk)
2. Give an example of the following:
   a) Keying device (1mk)
   b) Pointing device (1mk)
   c) Scanning device. (1mk)
3. Give ***TWO*** reasons why operating systems were developed. (2mks)
4. List ***THREE*** things which accompany newly purchased software. (3mks)
5. A printer fails to work as expected when a document is sent to be printed. The user has checked that the on-line light of the printer is on and the printing paper is correctly inserted. Give ***TWO*** other possible reasons why the printing process failed. (2mks)
6. Explain the difference between serial and parallel data transmission. (2mks)
7. Programmers use programming languages to write programs. Based on this statement, distinguish between the following terms as applied in programming.
   a) Source code and an object code. (1mk)
   b) Machine language and assembly language. (1mk)
8. Computer hardware components consists of control unit(CU), main memory(MM), arithmetic and logic unit(ALU), secondary storage devices, input and output devices. Study the diagram below and answer the questions that follow.



Name the parts labelled A, B, C and D. (2mks)

9. Assuming that data is being transmitted using odd parity ASCII system, what could you deduce if each of the following bits are received?
   a). 10100101 (1mk)
   b). 10111001 (1mk)
10. a) What is a secondary storage device? (1mk)
    b) Give ***THREE*** reasons why DVD's are increasingly being used today. (3mks)
11. a). Explain the following features as used in word processing.
    i). Word wrap (1mk)

    ii). Thesaurus (1mk)

    b). The first column in the table below contains the formula stored in cell C10 of a spreadsheet. Enter the formulae as they would appear when copied to cell F15 of the same spreadsheet. (3mks)

FORMULA IN C10	FORMULA IN F15
=A5*B5	
=A$5	
=4*B$6	

12. Give ***THREE*** responsibilities of a systems analyst. (3mks)
13. a). What is meant by the term tele-commuting? (1mk)
    b). An organization intends to install tele-commuting in its operations. List ***THREE*** disadvantages that are likely to be encountered. (3mks)
14. a). Name the stage of systems development life cycle where an interview is used. (1mk)
    b). State ***TWO*** advantages and ***TWO*** disadvantages of using interviews at the stage in 14 (a) above.
    Advantages (1mk)
    Disadvantages (1mk)
15. a). Give ***TWO*** examples of desktop publishing software. (1mk)
    b). A computer teacher at Mpeketoni Girls High School tells students to always ensure that computers are connected to uninterrupted power supply. List ***TWO*** reasons why it's necessary to have this device in a computer lab. (1mk)

SECTION B (60 marks)

Answer Question 16 and any other three questions from this section.

16. A programmer uses program design tools to design a program that can list the odd numbers between 0 and 100.
    a). (i). Write a pseudo code for this problem. (5mks)
    ii) Draw a flow chart for the pseudo code in 16 a) (i) above. (6mks)
    b). Name ***FOUR*** data types used in structured programming. (4mks)
17. a). (i) Define the term information system.
    (ii) Differentiate between a closed system and an open system in relation to system boundary. (2mks)
    iii). Outline the stages of systems development life cycle in their logical sequence briefly describing what takes place at each stage. (7mks)
    b). i). A user wishing to access the internet may use a modem or an ISDN connection. What is the purpose of a modem?

(1mk)

ii). Explain why using an ISDN connection to the internet eliminates the need for a modem.

(1mk)

iii). State ***THREE*** forms of communication that can be transmitted by an ISDN line. (3mks)

18. a). (i) What is data privacy?

(1mk)

ii). Give ***FOUR*** provisions of the Data Protection Act of 1984 regarding personal data. (4mks)

b). List ***FOUR*** factors to be considered when choosing a data processing mode. (2mks)

c). (i) What is an expert system? (1mk)

ii) State ***TWO*** advantages and ***TWO*** disadvantages of using expert systems.

Advantages (2mks)

Disadvantages (2mks)

d) Explain the following terms as applied in internet communication.

i). Search Engine. (1mk)

ii). Uniform Resource Locator (URL) (1mk)

iii) Domain name (1mk)

19. a). List ***TWO*** characteristics of good information. (2mks)

b). (i). What is a database management system? (1mk)

ii). State and explain ***THREE*** database models. (3mks)

c). Describe the following types of files.

i). Master file. (2mks)

ii) Backup file. (2mks)

iii) Transaction file. (2mks)

d). Explain the file organization methods given below.

i) Serial. (1mk)

ii) Indexed sequential. (1mk)

iii). Random. (1mk)

20. a). Explain what is achieved by the following WINDOWS commands. (2mks)

i). Save as

ii). Save

iii). Rename

iv). Print preview

.

b) (i). Identify and explain ***TWO*** types of network topologies and for each, give TWO advantages it has for its users. (6mks)

ii). Convert 39.75_{10} to binary. (4mks)

c). State and explain ***THREE*** types of program translators. (3mks)

MARANDA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

QUESTION ONE

a) Using the information below, design an appropriate spreadsheet and enter the following data Give the table an appropriate Title. Save as ***D: ACTIVITY 1*** ***(12mks)***

Khadija scored 89 in English. 76 in Biology, 56 in *Computer*, 90 in Kiswahili and 48 in Math's. **Peter** scored 78 in English, 89 in Biology, 67 in *Computer*, 90 in Kiswahili and 34 in Math's. **Jane** scored 70 in English, 93 in Biology, 34 in *Computer*, 23 in Kiswahili and 69 in Math's. **Tasneem** score d 72 in English, 36 in Biology, 79 in *Computer*, 85 in Kiswahili and 56 in Math's **Rashid** scored 90 in English, 98 in biology, 89 in *Computer*, 100 in Kiswahili and 35 in Math's.

(b) Calculate the total marks for each student Label it appropriately. Write on the paper provided the formula used for Tasneem. ***(6mks)***

(c) Calculate the average for English, Biology, *Computer*, Kiswahili and Math's and Total score for the class. Label this average appropriately and write on the paper provided the formula for obtaining these average marks for *Computer*. Save as D:' ***Activity 2*** ***(8mks)***

(d) Arrange the records in a descending order by total score. ***(4mks)***

(e) Count all students whose total score is above 60% and place your result in an empty cell. Label the result appropriately Write on the paper provided the formula used. Save as ***D: Activity 3.*** ***(6mks)***

(f) The school would like the remark PASS for students whose total score is 50% and above and FAIL otherwise. Generate an appropriate cell. Label the row/column as REMARK, Write down the formula used for Peter. Save as ***D: Activity 4.*** ***(6mks)***

(g) Plot a bar graph for the following averages. English, Biology, *Computer*, Kiswahili and Math's Add a title and label the *X* and Y axes appropriately. Save your graph as ***D: Activity G.***

(6 Marks)

h) Print *Activity*1, *Activity* 3, *Activity* 4 and *Activity* G. ***(2mks)***

QUESTION TWO

(a) Create a database file named *D:*HOTELS to store the following data. Make the passport Id unique record identifier (the primary key) ***(20marks)***

NAMES	PASSPORT	AGE	MALE	HOTEL	HOTEL CHARGE	DATE OF VISIT
Bank Moon	UN017/98	42	YES	SERENA	$3'000.00	3.02.98
Barbara Bush	US009/98	58	NO	INTER-CONTINENTAL	$6,000.00	2.12.98
Hilary Clinton	USO15	38	NO	*WINDSAR*	$7,000.00	1.02.98
Nana Anan	UNO16/98	42	NO	*HILTON*	$8,000.00	1.10.98
Akata Mary	UG013/98	68	YES	*HILTON*	$4,500.00	1.02.98
Jakaya Kikwete	TZ001/98	68	YES	*HILTON*	$6,300.00	1.05.98
Desmond Tutu	SA007/98	79	YES	*WINDSAR*	$7,000.00	3.04.98
Mashell Graca	MG011/98	51	NO	INTER-CONTINETAL	$10,000.00	3.05.98
Kennedy Njoroge	KE001/98	45	YES	*LAICO*	$6,000.00	1.06.98
Margaret	GB010/98	72	NO	SERENA	$9,200.00	1.02.98

Thatcher						
Museveni Kaguta	UG00/98	52	YES	*WINDSAR*	$8,000.00	1.11.98
Jalal Talabani	IQ005/98	64	YES	*LAICO*	$3,200.00	3.05.98
Al Bashir	LB006/98	48	YES	*WINDSAR*	$11,000.00	3.12.98
Salva Kilr	SD014/98	50	YES	*HILTON*	$8,000.00	1.12.98
Jacob Zuma	SA012/98	67	YES	SERENA	$11,000.00	2.11.98

b)

ii) Sort the table in ascending order of age.

iii) Save the table as D Hotels 2 ***(3 Marks)***

c) Insert a field that will accommodate the continents of their origin. Note that passport ID UNO 17/98, UN016 98, USOI5/98, US009/98 are from America. UG013/98, TZ001/98, SA007/98, MQ011/98, KE001/98, UG003/98, LB006/98, SDOI4/98, SDO14/98 AND SAO 12/98 from Africa 1Q005/98 Asia and GB010/98 Europe. Save as *D:* Hotels 3

(6marks)

d) i) Create a query that contains the field passport ID, Names, Date of Visit, Hotel Charge and age for all members who visited Kenya hotels after 2/12/98 and are above 60 years of age or their Hotel charge paid is less than $ 7,000.00 Write down the query expression used. Save as ***D: QueryH*** ***(6 Marks)***

ii. Create a total query that will give total hotel charges .Save as ***D:Query T*** ***(4marks)***

e)

i) Excluding the male field, create a report and give it a title " President Visit" ***6marks)***

(ii) Save the report as ***D: Report P*** ***(2Marks)***

iii) Print Hotels, Hotels *2,* Hotels 3, Query H, Query T, Report P (3mks)

NAIROBI SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

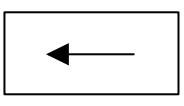
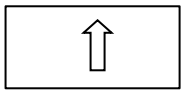
451/1
COMPUTER STUDIES
PAPER 1
(Theory)
TIME: 2 ½ HOURS

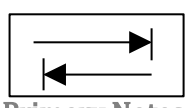
SECTION A (40 MARKS)

Answer all the questions in this section in the spaces provided

1. State any **two** peripheral devices that are powered by the system unit. (1 mk)

2. The following are symbols of some keys found on the keyboard. Name the keys represented by the symbols.
(2 mks)


_____

_____

3. Explain any **three** functions of system software in a computer (3mks)
4. As a computer student you have been asked to assist in buying an input device. State any **four** factors to consider when buying input devices. (4mks)
5. i. The arithmetic logic unit, the control unit and the main memory use electrical pathways or links
   called buses. State and explain the three types of buses. (3mks)

   ii. What is the role of special purpose memories in the microprocessor? (1 mk)
6. Outline the **three** differences between primary memory and secondary memory. (3mks)
7. Citing relevant examples state **two** advantages of integrated software as opposed to single purpose. (2mks)
8. a. Define the term mail merging (1 mk)
   b. Name **two** files that are created in mail merging process (1mks)
9. (a) Distinguish between a workbook and a worksheet as used in spreadsheets (2mks)
   (b) What is the meaning of "what if analysis" with respect to spreadsheet? (1mk)
10. Define the following terms in relation to internet (2 mks)
    i). Downloading
    ii). Hyperlink
11. Benjos was instructed by his teacher while typing a Microsoft word document to replace all the occurrences of the word MS with Microsoft. Highlight the steps to do this (3mks)
12. What is the difference between logical and physical file? (2mks)
13. Explain any **three** types of computer processing files. (6mks)
14. Give a reason why HTML is not considered as a true programming language. (1mk)
15. (a) Define the following computer crimes
    (i) Piracy (1mk)
    (ii) Industrial espionage (1mk)

SECTION B (60 MARKS)

Answer questions 16 (COMPULSORY) and any other three questions in this section

16. (a) Draw a flowchart for a program that is to prompt for N numbers, accumulate the sum and them find the average. The output is the accumulated totals and the average. (5 mks)
    (b) Write a pseudo code for the above program. (4 mks)
    (c) Explain **three** types of control structures use in programming. (3mks)
17. (a) i. Subtract 110_2 from 11010_2 (1mk)
    ii. Find the sum of binary number 101.101_2 and 110.100_2 (1mk)
    (b) i. Convert binary number 11010110.1001_2 into octal number. (1mk)
    ii. Convert binary number 11010110.1001_2 into hexadecimal number.

(1 mark)

(c) Convert the following numbers to their decimal equivalent

i. 11.011_2 (2 marks)

ii. 0.11011_2 (2 mrks)

(d) i. Convert $3BD_{16}$ to Octal. (3mks)

ii. Using one's complement, calculate $5_{10} - 9_{10}$. use six bit in your calculation. (3mks)

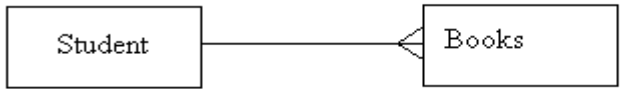
(e) State the following types of transcription errors: (2 marks)

i. 3455 instead of 3456

ii. Simth instead of Smith

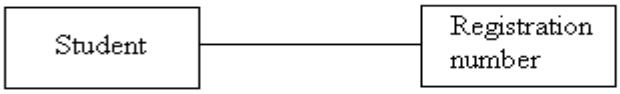
18. (a) State and explain the following types of relationship as used in database design

i.



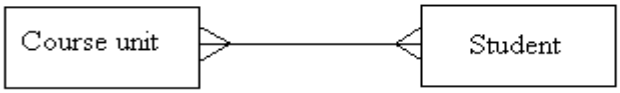
(2 marks)

ii.



(2 marks)

iii.



(2 marks)

(b) i. Explain the difference between primary key and an index key as used in database application

(2 marks)

ii. Outline the functions of a primary key (2 marks)

(c) Describe the following types of database model

i. Network model (2 marks)

ii. Relational model (2 marks)

19. (a) i. What is an operating system? (1 mark)

ii. Maintaining security is one of the functions the operating system. Explain how the operating system maintains security (2mks)

iii. Explain how an operating system controls I/O devices. (2mks)

b) What does the following control measures against computer crime involve? (5 mks)

1. Audit trail

ii. Data encryption

iii. Log files

iv. Passwords

v. Firewall

(c) Briefly explain what happen during power on self test (POST) (3 mks)

(d) Explain the functions of complementary metal-oxide semiconductor (CMOS)(2 mks)

20. a) State **two** advantages and two disadvantages of the ring network topology

Advantage (2mks)

Disadvantages (2mks)

b) State **two** roles and responsibilities of each of the following ICT professionals

i) Webmaster (2mks)

ii) Network Administrator (2mks)

iii) Computer scientists (2mks)

iv) System Administrator (2mks)

v) Software Engineer (2mks)

c) Explain the term accreditation as used in education (1mk)

NAIROBI SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

1. The information below was extracted from CMC vehicle selling business

Buyer Name	Buyer Address	Buyer Town	Vehicle Reg NO	Vehicle Type	Vehicle Make	Vehicle price	Buyer Number	Amount paid
peter	254	Nakuru	KAJ 001	Matatu	Nissan	1200000	B001	800000
john	678	Eldoret	KAJ 002	Bus	Mazda	2400000	B002	2000000
Ken	963	Nairobi	KAJ 003	Saloon	Toyota	800000	B003	600000
Peter	147	Nakuru	KAJ 004	Pick up	Peugeot	1000000	B004	700000
Roy	456	Bungoma	KAJ 005	Lorry	Isuzu	3000000	B005	2000000
Glen	789	Webuye	KAJ 006	Pick up	Toyota	1800000	B006	1600000
John	678	Eldoret	KAJ 007	Bus	Scania	7500000	B002	7500000
Ken	963	Nairobi	KAJ 008	Matatu	Toyota	1300000	B003	1300000
Phillip	159	Kisumu	KAJ 009	Saloon	Nissan	900000	B007	900000
Peter	254	Nakuru	KAJ 010	Pick up	Isuzu	1500000	B001	1200000

Ken	357	Kisumu	KAJ 011	Saloon	Peugeot	700000	B008	700000
Glen	789	Webuye	KAJ 012	Bus	Isuzu	10000000	B006	9500000
Peter	147	Nakuru	KAJ 013	Matatu	Nissan	2700000	B004	2700000

a) Create a database file named CMC (2 marks)

j) Using the information in the table, create a table to hold vehicle detail and another to hold buyer details. Name them **tblvehicle** and **tblbuyer** respectively (4 marks)

k) Enforce referential integrity between two tables. (2 marks)

l) Create different input screen for each table, giving them appropriate title. Name them **frmvehicle** and **frmbuyer**. Use them to enter data into the tables. (12 marks)

m) Display a report only showing the details of the buyers who have cleared paying for the vehicle. Name the report **rptcleared** with ''CLEARED BUYERS'' as the title of the report. (10 marks)

n) Using the two tables create an outlined report showing the customer details, the total amount paid by each customer and the total amount received by CMC during this time. Name the report **rptnilbal** and the title as 'SUMMARY REPORT PER BUYER.''

(8 marks)

o) Create a query to display the vehicle details with balances of less than 500,000 but not less than 300,000. Name the query as **qrymidbal.** (7marks)

p) Create a report showing the vehicle type, the total sales for each type and the grand total. (3 marks)

q) Print **tblvehicle, tblbuyer, rptcleared, and rptnilbal** and **qrymidbal** landscape orientation with footers being your last name and index number at the centre of the page. (2 marks).

2. Use a spreadsheet to manipulate data in the table below.

Adm. NO	Name	Stream	Comp	Art	Bus	Eng	Mat	STUDENT MEAN	RANK
C001	Barasa	H	56	45	36	56	26		
C002	Wangila	K	58	57	90	54	23		
C003	Wafula	H	48	56	54	45	25		
C004	Wanjala	K	78	95	78	46	24		
C005	Kerubo	H	49	86	68	35	52		
C006	Akinyi	K	56	45	25	63	54		
C007	Odhiambo	H	75	78	45	65	56		
C008	Okunyuku	K	89	69	65	53	51		
C009	Nekesa	H	69	58	45	54	52		
C010	Simiyu	H	85	46	78	52	53		
	TOTAL								
	TOTAL	FOR H							

	TOTAL	FOR K							

a) Enter the data in all bordered worksheet and auto fit all columns. Save the workbook as **mark1** **(15 mks)**

b) Find the total marks for each subject (3 mks)

c) Find total for each subject per stream using a function. (5 mks)

d) Find mean mark for each student using a function (5 mks)

e) Rank every student in descending order using the mean (5 mks)

f) Create a well labeled colum chart on a different sheet to show the mean mark of every student. Save the workbook as **mark2.** (7 mks)

g) Using **mark1**, use subtotals to find the average mark for each subject per stream. Save the workbook as **mark3** (7 mks)

h) Print **mark1, mark2,** and the **chart** (3 mks)

ALLIANCE BOYS HIGH SCHOOL

COMPUTER STUDIES

PAPER I

MARKING SCHEME

1. (a) Purpose of registers in a computer systems.
   To temporarily hold data that is waiting to be processed or after processing. I mk
   (b) Types of register found in the central processing unit.
   - Addressing register
   -. Storage register 1 mk
2. Computer room should be well lit to avoid eye strain
   - avoid over bright wall paints that reflect too much light causing eye strain
   - adjust brightness of the computer monitor until the eyes feel comfortable before using the computer
   - use/fit the monitor with radiation filter screens
   - avoid using flickering monitor
   - seat for the user must be comfortable and have a straight backrest that allows someone to sit upright
   - take frequent breaks while working with a computer
3. (a)—creation
   - Transmission

- Preparation
- Media conversion
- input validation
- sorting

4. (a) Importance of internet to society
   - Enhances commerce
   - improved communication 2mks

   (b) Challenges that internet has brought to society
   - Individual privacy cannot be guaranteed
   - Moral and cultural issues have been greatly affected
   - Security as a lot of information can be accessed from the internet. 2mks
5. (a) portability refers to whether a program can be copied or installed in more than one computer

   (b)
   - in-house developed programs
   - Venue at the-Shelf software purchase through a vendor
   - Open source
6. (a) 10100_2 (b) $1\ 100.001_2$ (c) 326.448
7. Outline two major functions of UPS in computer laboratory. (2 marks)
   (i) it regulates power voltages by eliminating surges and brownouts
   (ii) it temporarily provides power to the computer incase of a sudden power failure so the user can save his work and shut down the computer
8. (a) Define virtual reality. (1 mark)
   - it is the use of computer to visualize, manipulate and interact with complex data.ORX-refers to a condition in which a person becomes psychologically immersed in an antificil environment using computers

   (b) List any two applications of virtual reality.
   - Video mapping
   - immensive systems
   - Telepresence
9. (a)
   - One — to — one
   - One—to—many
   - Many—to—many

   (b) -relationship based on primary and foreign keys
   - a feature that governs the nature of records in a one — to — many relationship between tables in database
10. **Differentiate between**

    SRAM
    - Faster in access of data by CPU.
    - Larger in size
    - Expensive
    - Don't require refreshment

    SDRAM
    - Slower in access
    - Smaller in size
    - Cheaper requires constant refreshment
    - Requires constant refreshment

    (b) Reason why processor of micro computers is referred to as micro processor
    - It is a small/tine clip put into a silicon clip.
11. Advantages and disadvantages of impact over non impact printers

    Advantages

- Cheap to buy
- Hardy

Disadvantages

- Slow
- Make a lot of noise
- Low quality printouts

12. Advantages of USB port over the parallel port
    - Faster data transfer rate
    - Supports multiple devices
13. - PORTRAN - for scientific and mathematical programs
    - PASCAL - Teaching structured programming
    - COBOL - Developing business oriented programs
    - ADA — Developing real time and industrial systems
14. (a) Logical file is what data items and processing operation may be performed while physical file is how data is stored and how it is to be processed.
    (b)
    - Master
    - Transaction
    - Back up
    - Reference
    - Report
    - Sort
15. a). — A process of generating personalized letter / documents by e.g letter with an existing data source such as address book.
    b).
    - Primary file (main document)
    - Secondary tile (data soure)
    - Merged tile (data source)

SECTION B. (60 MARKS)

16. (a) What would the flow chart generate as output if the value of N at input was:
    (i)6?

N	M	N	F	M	F	
6	1	1	1	4	24	
	2		2	5	120	
	3		6	6	720	2mks

    (ii) 1?

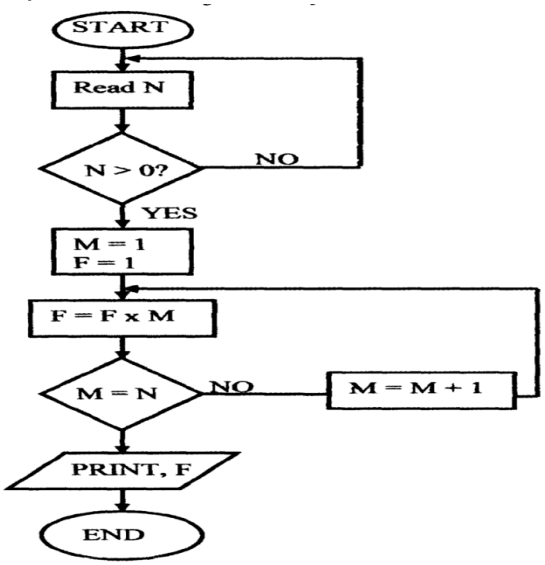
N	M	F	F	
1	1	1	1	2mks

    (b) Pseudocode that does the same thing as the flow chart above

```
Start
Read N
Initialize      M to 1
                F to  1
Calculate F = F x M
```

```
IF M = N Then
        Print, F
Else M = M + 1
End IF
Stop
```

(c) Modify the flow chart so as to reject an input below O and to avoid the looping when the input is O (4mks)



1 7. (a) State any three duties of the following ICT personnels.

(i) Systems analyst.

- hold discussions with manager and users of the system to determine their exact needs
- gather facts about the system in question
- make recommendations for the procurement of hardware and software if necessary
- test and debug the new system
- assist in training employees to use the new system
- evaluate the performance of the system
- design system any3 1x3

(ii) Database administrator. (3 marks)

- ensure the data base performance is optimum
- develop policies and procedure to ensure the security and integrity of the system
- Co-ordinates data collection and storage
- meet with users to make modifications to the database
- Co-ordinate the database design
- select database system for the company
- maintains the database system

(iii) Web master (3 marks)

- ensure the site contains the required information
- ensure that all the links on the site work and site is easy to navigate
- develop a web pages
- post new content to the website I update the web site content

(b) Name any three ICI courses offered m the Kenyan universities. (3 marks)

- Computer science
- Information technology IT
- Computer engineering

- Software engineering

(c) Outline three advantages of telecommuting. (3 marks)

- cuts traveling cost
- It saves time because no traveling involved
- Productivity ma increase
- Less distraction from co-workers
- No need to hire large office hence low rent

18. (a) The formula = K20 + P & 18 was typed in cell L21 and then copied to cell M24 of spreadsheet. Write the formula as it appears in M24

L23 +P& lS2mks

(b) Spreadsheet is a collection of sheets made up of rows and columns on which numerical data is entered and manipulated. 1imk

(ii) Examples of spreadsheet packages

- MS excel
- Corel Quattro pro
- Lotusl-2-3
- Open office calc. 2mks

(iii) Explanation of the following terms in spreadsheet

What IF analysis — This involves changing the value of one of the arguments in a formula to see the difference the change would make on the result of the calculation. lmk

Cell — Intersection between a row and a column. 1 mk

Formula — User defined expression that creates a relationship between cells to return a new value. lmk

Pie — chart— Graphical representation/ displays the contribution of each value to a grand total. lmk

(c) Distinguish between the following

(i) Worksheet and workbook

Worksheet is a collection of rows and columns where data is entered. Workbook is a collection of worksheets. 2mks

(ii) Filtering and sorting

Filtering is selecting data in a worksheet based on a criteria. Sorting is arranging data in certain order. 2mks

(d) Way in which user may reverse the last action taken in a spreadsheet package.

- Undo command
- Control+Y lmk

19. (a) Define artificial Intelligence. (1 mark)

- refers to the ability of a computer to mimic capabilities
- it is the branch of computer science that is concerned with the development of machine that emulate human — like qualities such as leaning, reasoning, communicating the science of attempting to develop machine that mimic human behaviours

(b) Explain the application of artificial intelligence in the following areas. (6 marks)

(i) Natural language processing

- have been used to produce voice recognition and synthesis system

(ii) Robotics

- Al have been used to control robot
- A1 have been used to construct robots
- Computers are used to control machines in the place of man. E.g. welding, spraying,

loading

(iii) Expert systems

- AI have been used to produce
- expert systems that can be used in research, medical diagnosis etc

(b) Give any three symptoms of the following computer work-related disorders and two of their methods of prevention.

(i) Computer vision syndrome. (4 marks)

Symptoms

- sore, tired, burning and itching or dry eyes
- blurred or double vision
- headache or sore neck
- increased sensitivity to light

Prevention

- take a break of 5 to 10 minutes
- reduce glare and reflection from the computer screen
- adjust the contrast and brightness of the screen
- prevent eye strain by adjusting the sitting height
- gentle massage your eyes

(ii) Repetitive strain injury. (4 marks)

Symptoms

- Numbness in the thumb or in fingers
- Extreme pain at the wrist
- Tingling in the finger

Prevention

- take frequent breaks
- position as the keyboard

20. (a) Define the term ergonomics (1 mark)

- it is a science that determines the best working condition for humans who work with machines

(b) (i) Give any three advantages of using a fibre optic cable in data transmission (3marks)

- cannot be affected by electromagnetic interference
- offer fast transmission rates than other media
- supports high bandwidth or can transmit large volume of data at once
- less prone to transmission impairments or has low attention
- Eaves dropping is difficult to be done
- takes limited or less space

(ii) Name two types of fibre optic. (1 mark)

- Single mode
- Multi mode

(c) State three advantages of wireless communication. (3 marks)

- flexible in operation — one move around without losing access to the network
- covers a large geographical area easily
- covers remote areas where physical infrastructure like cables is expensive

(d) Explain the following terms. (3 marks)

(i) Multiplexing

- it is the process of sending multiple data signals over the same medium (Give mark if diagram exist)

(ii) Bandwidth

- it is the maximum amount of data that a transmission medium can carry at any one time

(iii) Baseband signal

- it is a digital signal that is generated and applied to the transmission medium directly without modulation.

(e) Explain the use of these communication devices. (4 marks)

(i) Routers

- it interconnect different network. It directs data efficiently towards its intended destination a cross a network

(ii) Hub

- is a component or device in a network that transmit signals by broadcasting them to all the computers on the network. The computer whose address is on the message picks the message from the network that is part of the broadcast domain.

ALLIANCE BOYS HIGH SCHOOL

COMPUTER STUDIES

451/2 PAPER 2

MARKING SCHEME

1. a) Database - created - lmk
- Corrected name 'BORA UNIVERSITY COLLEGE' - lmk

b) Table name — STUDENT DETAILS —
(1 mk for each field name + appropriate data type max) 6 mks

c) Form created lmk
Saved as STUDENTS DATA ENTRY - lmk

d) Correct + complete entry — (lmk for each field) 6 mks

e) FEE payment table created -1 mk for correct name
- 1 mk for incorrect name
Correct field name + data type - lmk each (max 3 mks) 5 mks

f) Tabel linked - 2mks

g) Data entered — Complete and correct 2 mks
(Incomplete or incorrect I mk)

(h) Query name FEE PAID lmk
J,K,L,M
Each field 1 mk 4mks

THE PAYMENT REPORT

ADM NO	FEE PAID RECEIPT NO
3224	$12,000.00 100
4455	$30,000.00 121
6677	$30,000.00 152
7760	$25,000.00 134
2312	$30,000.00 145
6547	$23,000.00 124
6579	$30,000.00 150

FEE PAID

ADMNO FIRST NAME	LAST NAME	FEE PAID
3224 JOHN	FLORA	$12,000.00
4455 MARY	MUTUA	$30,000.00
6677 BENARD	MA1NGI	$30,000.00
7760 DAVID	NAJA	$25,000.00

2312 EVY	DANSON	$30,000.00
6547 JOY	KELLY	$23,000.00
6579 MWANGI	SAM	$30,000.00

GRADUANTS REPORT

ADM NO FIRST NAME	LAST NAME	COURSE TAKEN
4455 MARY	MUTUA	ACCOUNTS
2312 EVY	DANSON	FRENCH

SEND HOME BUDGET

ADM NO LAST NAME		BALANCE
3224 FLORA		$18,000.00

2. a). Prepare a publication layout with the following specifications
i) Paper size :A4
ii) Orientation :Portrait
iii) Number of pages :1
iv) Margin :0.5 inches all round
v) Create column guides to subdivide the page into two columns
vi) Space between columns :0.3 inches

(6mks)

b). Produce the publication as shown in the sample. All the texts are in times new roman size 12 except

a). PK in the logo size 28
Triangle placement should be at the top left corner (lmk)
Star 24 sides (1mk)
PKsize28 (lmk)
PK text times new roman. (lmk)
Typing (3mks)

b) Unbeatable... .size 20. (½ mk)
Placement in relation to the triangle (½ mk)

c) You can't compare size 14. (½ mk)
Position — centered at the top of table (½ mk)

d) Working hours... .size 20 (½ mk)
Caps... 1/2 mark a.m, p.m (½ mk)
All days underlined. (lmk)
Fill pattern for working hours is 5%.. (lmk)
Border line style (square dot) (1mk)
Our offices.. .centered at the bottom (lmk)

e) Table (10 mks)
Text direction (2mks)
Shading of titles (1 mk)
Bolding of titles. (lmk)
Typing (5 mks)
Border. (lmk)

f) Ticket (20mks)
Centered (1 mk)
Midline style (lmk)
Title PK bus double underline (lmk)

Word Art, shading	(2mks)
Oval shapes.	(2mks)
Address text to the right	(lmk)
Typing, full colon	(3mks)
Border, type & style.	(2mks)
Rotation.	(lmk)
Column line.	(3mks)
General arrangement of objects	(3mks)
	(44 mks)
	(50 MKS)
	100 MARKS

MANG'U HIGH SCHOOL
COMPUTER STUDIES
451/1 PAPER 1
MARKING SCHEME

SECTION A (40 MARKS)
Answer all the questions in this section

1. State the technology used in the following computer generations (2 mks)
   i) 4th generation: very large integrated circuits
   ii) 1st generation: Thermionic valves (vacuum tubes)
   iii) 2nd generation: Transistors
   iv) 3rd generation: Integrated circuits (Award ½mk for each correct answer)
2. Outline **two** areas that should be considered when categorizing software. (1 mk)
   - ✓ System software
   - ✓ Application software
3. State any three disadvantages of a magnetic diskette (3 mks)
   - ✓ Small storage capacity consultable for storing files
   - ✓ Limited life span (2 years at most)
   - ✓ Slow read/write speeds
4. a) Define data processing ` (1 mk)
   - ✓ Refers to the process of transforming raw data into meaningful output i.e. information. It can do either manually or electronically

   b) Explain **two** characteristics of good information (2 mks)
   - ✓ Complete
   - ✓ Timely
   - ✓ Relevant
   - ✓ Accurate (*2 marks for any two)
5. Distinguish between data verification and data validation (2 mks)
   Data verification is the process of checking that data is correctly transcribed while data validation is the process of checking that data entered at input satisfies is correct
   Award 2x1=2 mks
6. Describe the following menu tools as used in Ms. Word (2 mks)
   i) Print layout: Enables the user view the document as it would appear on the printed page.
   ii) Web layout: Enables the user to view the document as it would look as a web page.
   (*1 mark for every correct description)

7. Define the following terms as used in mail merging

(4mks)

- ✓ Main document: form letter (standard letter) which you intend to print or e-mail multiple times, sending each copy of different recipients
- ✓ Data source: special record divided into field (list of addresses), when used in the merge document are called merge fields

8 a) What is the difference between real- time system and Online systems (2 mks)

- ✓ Real- time: A situation where a computer processes the incoming data as soon as it occurs up- dates the transaction file and gives an immediate response that would affect the events as they happen. i.e. Airline booking.
- ✓ Online- system: data processed is immediately received at a terminal or online input device attached to the computer: i.e. banking

b) Explain how information and communication technology has contributed to teaching and Learning in schools. (2 mks)

- ✓ Development of the digital content to enhance learning and teaching in schools.
- ✓ E-learning content has been made available to students
- ✓ Research is now done easily from the internet

9. State the uses of the following network devices. (2 mks)

i) Network interface cards

- ✓ Create the physical link between the computer and the transmission media

ii) Routers

- ✓ Interconnects different networks and directs the transfer of data packets from source to destination.

iii) Distinguish between thinnet and thicknet coaxial cables. (2 mks)

- ✓ Thinnet: has one dielectric insulator while thicknet has two dielectric insulator around the core and is thicknet than thinnet

10. Convert (111.010_2 to a decimal number (3 mks)

Place value	2^2	2^1	2^0	.	2^{-1}	2^{-2}	2^{-3}
Binary digit	1	1	1	.	0	1	0
value	4	2	1	.	.0	0.25	.0

Add values from left to right

111.010_2 is equivalent to 7.25_{10}

11. Explain the types of error that are likely to exist in a program? (4 mks)

- ✓ Syntax error :- grammar of programming language not followed
- ✓ Logical error:- program runs but does the wrong thing e.g. multiplies to give wrong product
- ✓ User unacceptability:- program runs but does not meet users requirements
- ✓ Run time error:- abnormal unexpected stoppages at the time of running / during execution e.g. on encountering something like 75/0

12. State **three** ways in which **ICT** can be used in industrial control (3 mks)

- ✓ Temperature control
- ✓ Fluid flow i.e. in petroleum refineries
- ✓ Regulation of pressure i.e. nuclear power stations

13. State **two** reasons why it is necessary to have well connected and proper cables in a computer lab (2 mks)

- ✓ To avoid stepping on live wires
- ✓ To ensure stable flow of power to electronic devices

- ✓ Loose connections can cause accidents in the lab

14. What do you understand by the term '**soft system"** in a system development? (1 mk)

- ✓ Systems whose boundaries keep on changing
- ✓ Have goals and objectives that usual conflict

- ✓ One cannot exactly define the exact measure of performance *1 mark any of the above

15. What is a relational database (1 mk)

A database structure in which data is organized in two- dimensional tables called relations where an element in any one table can be related to another piece of data in another table as long as they have a common data element

SECTION B (60 MARKS)

Answer question 16 and any other three questions from this section in the spaces provided.

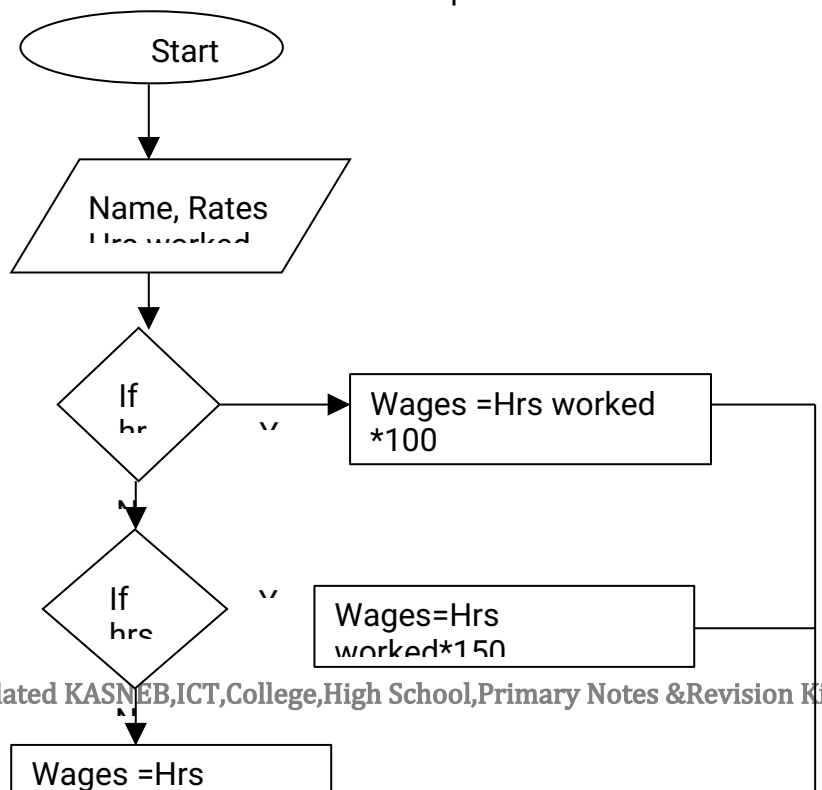
16. Mumias sugar company pays casual employees based on the number of hours worked as follows

Less than 10 hours @ khs 100/= per hour
Up to 15 hours @khs 150/= per hour
More than 15 hours@khs. 200/=per hour

a) Write a pseudo code to input the name, rate hours worked. The pseudo code should output the name, hours worked and the wage paid. (6 mks)

1. Start
2. Enter name, hours worked.
3. If hours worked is less than 10 hours Rate= hours *100,
4. If hours worked is greater than 10 hours and less than 15 hours Rate =hours *150
5. If hours worked is greater than 15 hours Rate = hours *200
6. Calculate payment; wage =hours *Rate
7. Display hours worked, payment rate and name.
8. Stop

b) Draw a flowchart for the above problems



C) Write brief notes on structured programming (4 mks)

- A systematic technique of program design that assumes the disciplined use of a few basic coding structures and
- The use of top down concepts to decompose main functions into lower-level components for modular coding purpose to me workplace network.
- It takes advantage of growing communication networks to reduce unnecessary travel to the place of work.
- In turn it translates to reduced travel expenses and less stress due to commuting inconveniences such as traffic jams.

17. List four characteristics of a system (2 mks)

- ✓ Holistic thinking
- ✓ Subsystem
- ✓ Boundary and environment
- ✓ Purpose
- ✓ Process
- ✓ Inputs and Outputs

b) Give any three circumstances that may make an organization to develop new information system. (3 mks)

- ✓ New opportunities: chance to improve quality of internal processes and service delivery.
- ✓ Problems: Undesirable circumstances that prevent the organization from meeting its goals.
- ✓ Directives: demands from internal or external influence e.g. management, Government

c) Study the spreadsheet below and answer the questions that follow

	A	B	C	D
1	WESTLINK COMPUTER BOOKS CENTRE			
2	TITLE	PRICE	NO.SOLD	COST
3	Computer longhorn book 2	320	25	
4	Visual basic (6)turbo	820	21	
5	Computer longhorn book 4	350	100	
6	Computer science	900	12	
7	Computer Applications	845	36	
8	Computer hardware	1250	10	
9	Computer software	1250	27	
10				

i) Write down the formula that can be used to find the cheapest book (1 mk)

- ✓ = small ((c3:c9), 1) or =min (c3...c9)

ii) Write down the formula that can be used to determine the total sales for the book titled' computer Applications (1 mk)

- ✓ =b6*c6

iii) Write down the formula that can be used determine the average price of the books
(2 mks)
= (B3+B4÷B5+B6+B7+B8+B9)/7

d) State any four advantages of using an electronic spreadsheet as compared to a traditional worksheet (2 mks)

- ✓ Utilizes powerful aspects of computer like speed, accuracy and efficiency to enable the user quickly accomplish his/ her tasks.
- ✓ Have inbuilt formulae called functions that enables the user to quickly manipulate mathematical data
- ✓ Have better document formatting capabilities.
- ✓ Automatically adjusts the result of a formula if the values in a worksheet are changed i.e. automatic recalculation.
- ✓ Enables the user to produce neat work because traditional papers, pencil, rubber and calculator are put aside
- ✓ Utilizes the large storage space on computer storage devices to save or retrieve documents.

e) Differentiate between a column chart and a bar chart as used in spreadsheet(4 mks)

- ✓ Column chart : represents data as a cluster of columns comparing values across categories
- ✓ Bar charts: Data values arranged horizontally as clustered bars compares values across categories

f) Define the term gutter in relation to column setting in DTP (1 MK)

It refers to the ally or space between columns of text in a page layout in desktop publishing.

18 a) Name and describe four main application areas of artificial intelligence in ICT. (12 MKS)

- ✓ Expert systems: software designed to operate at a level of a human expert in a specific area of specialization.e.g. medical diagnosis
- ✓ Natural language processing: special programming where computers can recognize and understand natural language
- ✓ Artificial neural networks: Use of electronic devices and software to emulate the neurological structure of human brain
- ✓ Robotics/ perception systems: Computer controlled device that emulate a human being in carrying out tasks that would otherwise be dangerous

(*1 mark for each correct application named and 2 marks each for correct description)

b) State three advantages of automated production in manufacturing industries. (3 mks)

- ✓ Increased efficiency because production ability is well balanced with the workload.
- ✓ Efficient utilization of resources i.e. raw materials, personnel hence less operating costs is incurred.
- ✓ Improved customer service where high quality products are produced in time

(1 mark every correct answer)

19 a) Describe any two roles of the following career opportunities in the ICT field. (8 mks)

i) System analyst

- ✓ Reviewing the current manual/ current system and making recommendations on how to replace it with a more efficient one.
- ✓ Working with programmers to construct and test the system.
- ✓ Co- ordinate training of users of new system.

*(give 2 marks for any two)

ii) Information system manager

- ✓ Prepare budget for the department
- ✓ Managing human resource within the department.
- ✓ Making sure all tasks in the IT department are done properly
- ✓ Keeping department inventory records up-to-date.

*(give 2 marks for any two)

iii) Network administrator

- ✓ Set-up a computer network.
- ✓ Maintain and enforce security measures on the network.
- ✓ Monitor the use of network resources
- ✓ Maintain and troubleshoot network related problems

*(give 2 marks for any two)

iv) Computer trainer

- ✓ Develop training reference material
- ✓ Train people on how to use a computer and various application programs.
- ✓ Prepare learners for ICT exams.
- ✓ Advising learners on various career opportunities in ICT field

*(give 2 marks for any two)

b) Distinguish between a primary key and a foreign key as used in DBMS. (2 mks)

- ✓ A primary key is a unique key that can uniquely identify each row/record in a file /table while a foreign key is a field in a record that points to a key field in another table

Award 2x1=2 marks

c) What do the term header and footer mean? (2 mks)

- ✓ Headers: are lines of text that appear at the top margin of every page or selected pages.
- ✓ Footer: are lines of text that appear at the bottom margin of every page or selected pages.

d) What do you understand by the terms attenuation and baseband signal. (2 mks)

- ✓ Attenuation: This the decrease in magnitude and energy as a signal progressively moves along the transmission medium.
- ✓ Baseband signal: digital signal that is generated and applied to the transmission medium directly without modulation.

20. a) Define the following terms. (3 mks)

i) Record

- ✓ A collection of related fields that represent a single entity.

ii) File.

- ✓ A collection of related records in a database

iii) Database

- ✓ Holds all related files or tables forming the highest data organization hierarchy

b) i) List any **three** ways of dealing with virus on a computer. (3 mks)

- ✓ Run anti- virus programs frequently
- ✓ Limit the sharing of secondary storage devices.
- ✓ Always install up-to-date anti-virus programs to your computer.
- ✓ Always scan all downloads while using the internet

*(give 3 marks for any three)

ii) Explain the functions performed by:

a) The control unit (2 mks)

- ✓ Co-ordinates all processing activities in the CPU as well as input, storage and output operation
- ✓ Determines which operation is to be executed

b) Arithmetic and logic unit (ALU)

- ✓ Performs al arithmetic and logic operations

c) Convert the 522_8 to its base 10 equivalent (2 mks)

Place value	8^2	8^1	8^0
Octal digit	5	2	2
value	64	8	2

64 *5=320

8 * 2 =16

2 * 1 = 2

338_{10}

d) Using long division methods convert 67_{10} into binary. (2 mks)

2	67	
2	33 R	1
2	16 R	1
2	8 R	0
2	4 R	0
2	2 R	0
2	1 R	0
	0 R	1

Read the number upward

$67_{10}=1000011_2$

e) 0utline three disk management activities. (3 mks)

- Disk formatting
- Disk defragmentation
- Disk scanning
- Disk compression

- Disk back-up
- Disk partitioning

MANG'U HIGH SCHOOL

COMPUTER STUDIES PAPER 2

MARKING SCHEME

1. Presence of database Use of the correct name
   - b. Presence of the two tables @l/2 =
     Correct naming @l/2
     Correct decomposition @1
   - c. Presence of relation = Enforced integrity
   - d. Presence of two forms @1 =
     Use of correct form names @1 =
     Complete data entry in each table @4 =
     Presence of errors up to 4 errors (deduct 2 mks per table)
     Incomplete data entry award ½ marks per table
   - e. Query to retrieve who cleared (calculate balance) 2 mks
     (With the correct criteria) 2 mks
     Presence of report 1 mks
     Correct name of report 1 mks
     Correct title 1 mks
     Correct records 1 mks
     All buyer details 2 mks
   - f. Report presence = 2 mk
     Well named 1 mks
     Correct title 1 mks
     Outlined = 2 mks
     Summary 2 mks
   - g. Presence of the query 2 mks
     Correct query name 1 mks
     Correct criteria (2 mks for each part) 4 mks
   - h. Presence of the report 1 mks
     Vehicle type summary 1 mk
     Grand total 1 mks
   - i. Presence of print outs @ % *4 1 mks
     landscape @l/4*4 1 mks

     Presence of workbook 1 mks
     Correctly saved (correct name) 1 mks
     10 records correctly entered (5)1/2*10 5 mks
     Auto fit columns @l/2 *10 5 mks
     Presence of borders3 mks
     - b. Subject totals using a function/formula½*5
     - c. Total marks per stream ½ *10
     - d. Mean mark for each student ½ *10
     - e. Ranking for every student ½ *10
     - f. Presence of a column chart 1 mks
       Correct content 1 mks
       Labeling x-axis 1 mks
       Y-axis 1 mks
       Legend1 mks

Title 1 mks
Different sheet 1 mks
g. Sorting of records 2 mks
Average using subtotals Yz*10 5 mks
h. Printing the three sheets
i. TOTAL

PRECIOUS BLOOD SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER
451/1 PAPER 1
MARKING SCHEME

1. a) Multiplexing - It is the process of sending multiple data signal over the same medium. (Give mark if diagram exist.)
   b) Baseband signal - It is a digital signal that is generated and applied to the transmission medium directly without modulation.(2mks.)
2. a) Analog signal is made up of continuous varying waveform while digital signal is made up of non continuous discrete waveform.
3. a)
   - Boot sector viruses
   - File virus
   - Hoax virus
   - Trojan virus
   - Worms
   - Backdoors (Any 4: @ ½ mk Total = 2 mks.)
4. i) Partitioning - Creating volumes by subdividing a large physical disk.
   - Refers to the process of deviating a large physical disk into two or more partitions called logical drives.

   ii) Defragmenting – Consolidating fragments files into one area if the disk or so that file occupies a single, contiguous space on the above.
5. i) Sign in/ Log in- when you want to access a website, type the full address of the website in the address box.
   ii) Surf in/ Log in – The process of accessing the website.
   iii) Downloading- The process of transferring information from a remote computer to a local storage.
6. To access records of books faster.
   For faster updating of books records.
   To search title of books for someone to borrow.
   For research if there is connection to the internet. Any three @ 1mk: Total = 3mks
7. Simulation refers to the science of representing the behavior of real – life situation by using computerized models, while virtual reality refers to a condition in which a person becomes psychologically immersed in an artificial environment generated by a computer system.
   (Award 1 x 2 = 2mks.
8. Convert 11011011111.1111_2 to:
   i) Octal (2mks)
   Group the bits in the threes
   011 011 011 111

3 3 3 7 -1mks

9. a) Logical access is the ability to interact with data and software in the computer through access control procedures such as identification, authentication and authorization while physical access refers to the ability of people to physically gain access to a computer system of computer room.

Award 2 x1 = 2mks

b) **Logical access:**

Use of passwords for computer systems and files / folders.
Use of audit trail and access logs.
Use of data encryption.
Use of firewalls. *Any one mark@1mk*

Physical access control:

Burglar proofing
Setting up security guards to guard computer room.
Installing surveillance cameras. (2mks)

10. Give two possible ways of fitting the document in in one page:
- Reduce the line spacing.
- Adjust the left and right margins.
- Reduce the font size.

(2mks)

11. Real time – data is received and processed so fast and the results returned so quickly that the process is instantaneous to the user.

Batch – data is accumulated and processed at a predetermined time. Once processing begins no amendments.

12. It's faster, accurate and efficient in accomplishing task.
- It offers larger virtual sheet for data entry and manipulation.
- Electronic spreadsheets have better documents formatting capabilities.
- It has in built formulae (functions) that enables the user to manupilate mathematical data quickly.
- Automatically adjusts the results the results of a formula if the values of worksheet are changed.
- It enables the user to produce neat work.
- It utilizes large storage space on computer storage devices to save and retrieve documents.

13. It performs the following actions on message:
- Receive
- Stores
- Display
- Reply
- Compose new. Any 4 @ ½ mk Total = 2mks.

14. Provides the learner with clear illustration about a certain concept or skill.
Safer for illustration of dangerous experiments.
Cuts down the cost of performing dangerous experiments or training.

15. Power failure – Under voltage or voltage in a computer computer viruses and worms – unwanted programs written to cause damage to programs and data.

SECTIONS B

Answer questions 16 and any other three questions in this section.

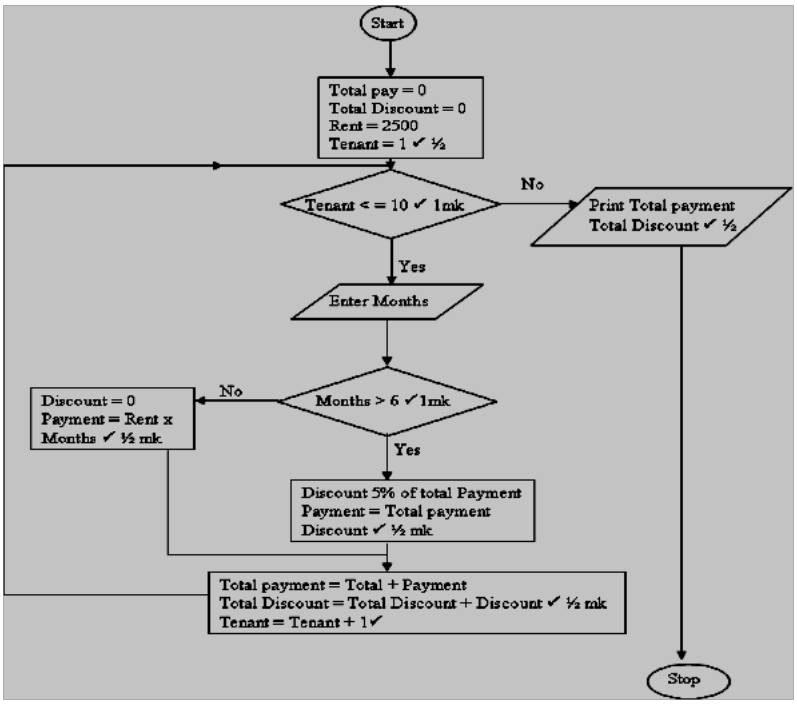
Start Start/stop – ½ mk

Total pay = 0
Total discount = 0 1mk
Tenant =1
Rent = 2500
While tenant < = 10 DO 1mk
Enter months of pay.
If months> 6 The 1mk
Discount = 5% of rent x months
Discount = rent x Months – Discount 1 mk
ELSE
Discount = 0
Payment = Rent x Months 1mk
END IF
Total pay = Total pay + payment
Total Discount = Total discount + Discount Tenant = Tenant +1 1mk
END WHILE
Print Total pay. ½
Print Total Discount
STOP

Total = 7mks

b)

Total = 7 mks



Start/Stop – ½ mk

c) i) The computer processes the incoming data as soon as it occurs, updates the translation files and gives the immediate response that would effect the even assist happens.

- The main purpose of a real – time processing is to provide accurate up – to – date information hence better services based on a true (real) situation eg. Making reservation for airline seats ie. Booking through remote terminal the information is given immediately by the reservation.

ii) Refers to dividing processing tasks to two or more computers that are located

on physically separate sites but connected by data transmission media. The distributes of processing eg. In banking industry where customers accounts are opened on servers in the branches but all the branch accounts can be administered centrally from the main server as if they reside on it.

17. a) Refers to the accuracy and completeness of data entered in computer or received from information system.

b) - Back up, especially on external storage media.
- Control access to data be enforcing securing measures.
- Design user interfaces that minimize chances if invalid data entry.
- Using error detection and correct software when transmitting data.
- Using devices that directly capture data from the sources such as for code reader,
- digital cameras optional character readers etc.

c) i) The computer process the incoming data as soon as it occurs, updates the translation.
- The main purpose of a real – time processing is to provide accurate up – to – date information hence better services based on a true (real) situation eg. Making reservation for airline seats ie. Booking through remote terminal the information is given immediately by the reservations.

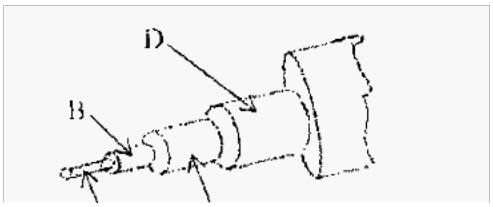
ii) Refers to dividing processing task to tasks to two or more computers that are located on physically separate sites but connected by date transmission media. The distributes of processing increases efficiency and the speed of processing e.g in banking industry where customers accounts are operated on services in the branches but all branch account can be administers centrally from the main server as if they reside on it.

d) Input - Hardware
Processing – Software
Memory – data / information
Output – procedures
Storage – communication.
Communication.

e) - Input
- Processing
- Memory
- output
- storage
- Communication

18. a) i) Coaxial cable

ii) A – Copper core
B – Core insulation
C – Aluminium foil.



D – Braided shieding

iii) - Has large band width – can carry voice data and voice simultaneously.

b) i) - UPS – a device that protects the computer from being damaged due to power instabilities

ii) - It regulates power from unstable power source to the required stable voltage by eliminating surges and brownouts.

- It temporary provides power to the computer incase of sudden power failure hence allowing the user to store / save his work and shut down the computer

c) i) Enables reception of output even when a few meters away from the computer.

- Enables reception of output even when a few meters away from the computer
- Make computing interesting and entertaining.

ii) - Write once read many (WORM)
- Decorded once but can be accessed many times without changing content.

19. a) Effects of ICT (information and Communication technology
- Job creation - it has introduced new job opportunities
- Job displacement – employee is moved to another place or department where computer skills are not required.
- Job replacement – computer illiterate people have been replaced with those who have the desired computer skills.

ii) Repetitive strain injury -(RSI) – They are injuries resulting from wrist, hand, arm and muscle strain tendons and neck stain due force force repetitive movements e.g entering data using keyboard.

b) i) Artificial neutral is the use of electronic devices and software to stimulate the neurological structure of human brain. The idea is to try and emulate the cognitive learning process of the human brain and how it recognizes patterns. Human brain works by receiving signals from special sensory cells called neurons. When neurons receive information. They exit the cell to send a signal to the brain or not.

ii) The neurodes can be trained to distinguish between what constitutes a signal and what does not.
- They are capable of recognizing patterns in large amount of data that are too complex for human brain. Therefore they can make predications and font abnomalitities.

c) i) Holistic thinking: It's a characteristic of a system where a system is considered as a whole. The various components that make up a system may be simple in nature and sophisticated than those of individual components.

ii) A system Entropy:- Its decay of the systems. systems decay naturally overtime i.e a system management polices or change policies or change in user requirements.

20. a) i) A system analyst is mostly responsible for analyzing the weakness of the system based on the system requirements.

ii) Computer repair and maintenance

b) Cost
- Job opportunities.
- Whether the examination offered are recognized.

c) Need to be onsite consumers a lot of time.
The person to be observed might alter behavior leading to wrong requirements being observed confidence in the new system then the old system is phased out.

d) i) Froth old and the new system are run parallel to each other for sometimes until users have confidence in the new system then the old

system is phased out.

ii) A new system is implemented in phases or stages e.g education system is changed from old to the new curriculum. Sometimes one phase may run a new system for fasting before it is implemented into all the other phases.

e) i) Firewalls: It is a device or software that filters the data and information exchanged between different networks by enforcing the host network access control policy. 1 mk.

ii) Data encryptions: - Data on transit over a network faces danger of being tapped. Listened to or copied to unauthorized destinations, such data can be protected by mixing it into a form that only the sender and receiver can be able to understand by reconstructing the original message from mix.

iii) Substances:- This is illegal destruction of data and information with an aim of erupting services delivery or causing great loses to an organization.

PRECIOUS BLOOD SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/2 PAPER 2

MARKING SCHEME

1. a) Existence of a database file named Mwangaza college. (2mks)

b) Existence of tables structure for each table with the right primary key type. (@ 3mks x 4)

c) Proper relationship of all the tables (@2mks x 4)

d) Existence of a data entry form for each table with all fields. (@ 1mk x 4)

e) Existence of the query with all fields names:-

- Correct entry of criteria in the query.

2. a) Records @ ½ mk x 17 = 8.5
   Workbook 1mk
   Saving 1 ½ mk

b) Copying 2mks
   Row insertion 1mk
   Calculation 20% 2mks
   Use of Abs ref. & 1mk
   Calc. Now Price. 1mk

c) Copying 1mk.
   Renaming 1mk
   Subtotals 3mk
   Grand total 1mk

d) Graphs 4mks
   Labelling 2mks
   Valve on each bar 1mk
   Title 1mk

e) New sheet & naming 2mks
Filtering
Correct records 2mks
Criteria 2 mks
f) All entry restriction 3mks
Message 1mk
Border 1mk
g) Header 1mk
Footer 1mk
Saving 1mk
Printing. 4 mks.

MOI GIRLS HIGH SCHOOL ELDORET KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/1 Paper 1
Marking scheme

Section a

1. - Main Memory (RAM)
- Input and output devices / ports
- The processor
- Secondary storage devices
- Communication device

(Any 4 x ½ = 2 Marks)

2. a. It is an hardcopy output device. They are mainly used in the fields of Engineering and architecture for producing graphic output on papers

b. - Flat bed plotter
- Drum plotter

3. i. Identing — moving the text away from the margin i.e **1st** line, full indent, hanging indent
ii. Alignment — refers to how text is lined up on the page relative to the right or centre of the page
iii. Footnote — are few notes / text found at the beginning of a page
iv. End note — are notes / text found at the bottom of a page

4. - Expert systems
- Natural language processing
- Voice recognition
- Voice synthesis
- Robotics

5. - COM ports are used for serial cables
- LPT ports are used for parallel cables connection

6. - Suitability of accumulating data
- Response time
- Cost of initial installation and operations
- Ease of development and subsequent maintenance

7. - Avoiding overcrowding of either machines or users in the room
- Ensuring that the room has enough ventilation points like windows
- Installing air conditioners

8. - Optical disks have larger storage area

- Data stored in optical disks is more stable and permanent
- Data stored in optical disks cannot be altered

9. i. Careful study of an information system by experts to establish all weaknesses in the System that could lead to security threats

ii. These are special files that keep a record (log) of events on the use of computers and resources of an information system.

iii. Combination of letters and characters that deter unauthorized users of computer form accessing data

iv. Combination of letters and characters that deter unauthorized users of computers from accessing data

10. - Gas plasma
- Electro— luminiscet
- Thin film transistors (TFT)
- Liquid crystal displays

11. - A process of generating personalized letter / documents by e.g letter with an existing data source such as address book,

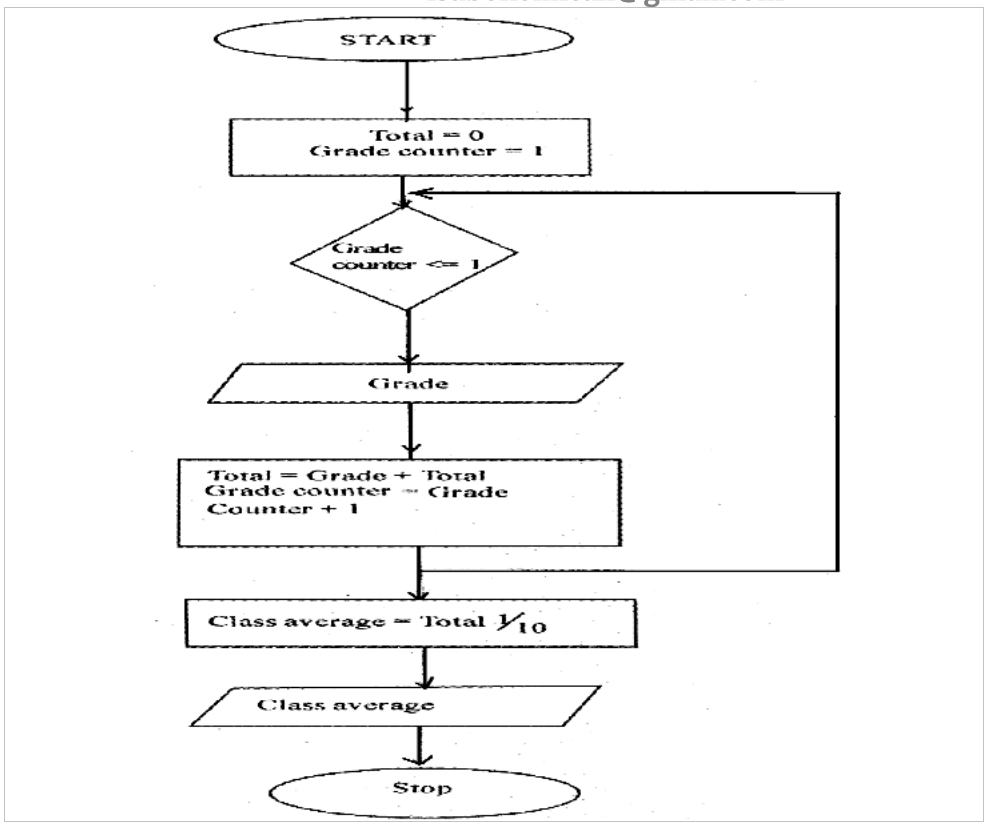
12. - Primary file (main document)
- Secondary file (data source)
- Merged file (data source)

13. - Processor speed
- Memory capacity
- Cost
- Warranty
- User needs
- Upgradeability . compatibility
- Portability

14. - Sorting
- Filtering
- Forms
- Total/ subtotal function

15. - Changing of text colour
- Changing of font size
- Changing of don't style
- Alignment

16. a)



b. - Desk checking — involves going through the program while still on paper before entering it in the program editor.
- using debugging utilities
- Using test data - programmer carries data with errors to test whether the system will come to a halt

c. - If ……then
- If ……Then…… Else
- Nested if
- Case selection

d. - Document is easier
- System maintenance is significantly easy
- Testing is easier and more comprehensive
- Flexibility — integration with other systems
- Easy to debug

17. a. i) $(2^{\circ}x\ l)+(2^{1}\ x\ 1)+(2^{1}\ x\ 1)+(2^{-3}x\ 1)$
$2 + 1 + 0+0.25 + 0.125$
$= 3.375_{10}$

ii. $(2^{0}\ x\ 1) + (2^{-1}x\ 1) + (2^{-1}\ x\ 1) + (2^{-2}\ x\ 1) + (2^{-4}\ x\ 1)$
$2+1+0.5+0+0.125+0.0625$
$=36.875_{10}$

iii. $(2^{0}x\ 1) + (2^{1}\ x\ 1) + (2^{2}\ x\ 1) + (2^{-2}\ x\ 0) + (2^{-3}\ xl) + (2^{-4}x\ 0)\ (2^{-5}\ x1)$
$4+2+1+0.5+0+0.125+0+0.03125$
$= 7.65625_{10}$

b. i. Back up data from external storage media
ii. Control access to data by enforcing security measures
iii. Design interface that minimize chances of invalid data entry

iv. Using devices that capture data at source

c. i. One can reach many respondents easily

ii. Since they are filed and returned in privacy more responses are possible

iii. Saves analysts time during investigation especially where residents are geographically scattered

iv. Questions can be presented consistently to all respondents **without** biasness

v. Are best suited because no details as long or long answers required but only straight forward answers.

d. Recycle bin contains the already deleted files folders and can be restored if users need item

1 8. a. - Has high bandwidth hence high carrying capacity
- Its immune to electromagnetic interference
- Cover large distance because of low attenuation
- Very secured because of low untappable

b. - Dynamic ram is slow while static is fast
- Dynamic needs refreshment while static doesn't need
- Dynamic looses its content while even if power is still on
- While static keeps content provided power is still on

c. i. update — updates data in a table

ii. Append query —- adds data in a table from one or more labels

iii. Make table query deletes specified records from one or more tables

d. Source program is a program code that the programmer enters in the program editor that is not yet translated into machine readable form while the object is a program code that is in machine readable form

e. Distinguish between a mouse pointer and a insertion point. The insertion point is a blinking vertical bar indicating where the text will he inserted as you type. While the mouse pointer is an arrow or object inform of a picture that is used to point on the task to be performed on application window

19. a. - enforce regular changes of passwords
- Have a minimum length of passwords
- Carry out spot checks to ensure passwords are not written down and kept by the computer
- Passwords should contain both letters and numbers
- Don't use same passwords on different computers

b. - Input
- Out put
- Process / CPU
- Quite simply input

c. - How to install, start and run the system
- Interface i.e how the system appears when running
- How to carry out various task
- Error correction and troubleshooting guide

e. - Java script
- Vb script
- HTML
- Hypertext processor

20. a. - Questionnaires
- Interviews
- Observations
- Note taking
- Study of available recorded / documents
- Tape recording

b. i. Process of transferring information from a remote computer to a local storage
ii. Text or picture on an electronic document especially webpage, that causes other web pages to open when the link is clicked
iii. These are many applications that enable a person to access the internet
iv. Companies that offer internet services to end users

c. Sorting refers to arranging data in a pre-defined order either ascending and descending while filtering is a quick and efficient method of finding and working with a subject of data within a list

d. i. A mail sent to many people indiscrimately
ii. A flat circular plate covered in magnetic which is able to store data on concentric tracks
iii. Refers to a modem fixed on the motherboard.

f. Refers to windows icons mouse ad pointing devices found on graphical user interfaces

MOI GIRLS HIGH SCHOOL ELDORET KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/2 Paper 2
MARKING SCHEME

1. a. Type exactly as it appears (26 marks)
- Title bold and left aligned
- 1st paragraph left alingned
- Numbering done properly
- 2nd paragraph well indented 1st line indent
- Subtitle hardware trends should be bold and underlined
- Saving/A

b. i. Searching and replacing word data with information (2 marks)
ii. Capitalising (2 marks)
iii. Saving 2 Marks — DOC B

c. i. Reformatting (6 marks)
DOC c

d. Reordering (6 marks)

e. Paper orientation to landscape (2 marks)

f. Prialing (2 marks)

2. a. i. Creating table and entering the data (4 marks)
ii. Setting a primary Key (2 marks)
iii. Setting index (2 marks)

iv . Saving table (2 marks)

b. i. Insert field for yes and No (2 marks)

ii. Indication of those who have paid more than 4000 (2 marks)

iii. Saving table with A (2 marks)

c. i. Creating a querry (8 marks)

ii. Writing the querry expression (2 marks)

iii Saving querry (2 marks)

e. i. report (10 marks)

ii. Saving report (2 marks)

KAPSABET BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES (THEORY)

451/1 Paper 1

MARKING SCHEME

1. - It require well trained expertise which may not be available
   - Crimes constantly change
   - Some leave no evidences
   - Some crimes can not be linked to an individual or organization.
2. - Ring topology – all devices are connected to one another in the shape of a closed loop
   - Star topology : all devices are connected to a central hub.
3. - Lack of trained personnel
   - Some areas are not connect to power supply
   - Lack of enough funds to purchase ICT equipments
4. It condition in which a person becomes psychological immersed in an artificial environment generatal by a computer system.
5. - Set of rules and procedures that govern communication between two different devices or people.
   - Is any devices that can be configured to provide access to WAN or internet
   - Maximum amount of data that a transmission medium can carry, at any one time.
6. - Has icons representing commands
   - Provide help
   - Has common menu like file, view, etc
   - Does not keep user for long without explanation
   - Free from bugs
   - meet all user's requirements
7. - Easy to develop dures that use binary language
   - Simplify technology for developing hardware and soft ware
   - Digital devices are reliable
   - Digital devices are small in size
8. - Bachelor or science in computer engineering
   - Bachelor of science in computer science
   - Bachelor of science in ICT

- Bachelor of science in software engineering

9. Sorting – arrangement of data in descending or ascending order
   Filtering – hiding of column or rows in worksheet.
   Or displaying data that meet a certain criteria

10. - System consists of related independent entities that work together to achieve a stated goal
    - Information system is an arrangement of people, data processer and information that work together to support and improve the day –to- day operations in a business and the decision making process.

11. i) $76\ CD_{16}$
    7 ⟶ 0111
    6 ⟶ 0110
    C ⟶ 1100
    ⟶ D 1101
    $76CD_{16} = 01110110110011101_2$
    ii) 123_8
    1 ⟶ 001
    2 ⟶ 010
    3 ⟶ 011
    $123_8 = 001010011_2$

12. - DRAM memory chip offer more capacity, and are cheap but slower than SRAM.
    - SRAM cost more than DRAM but has higher level of performance.

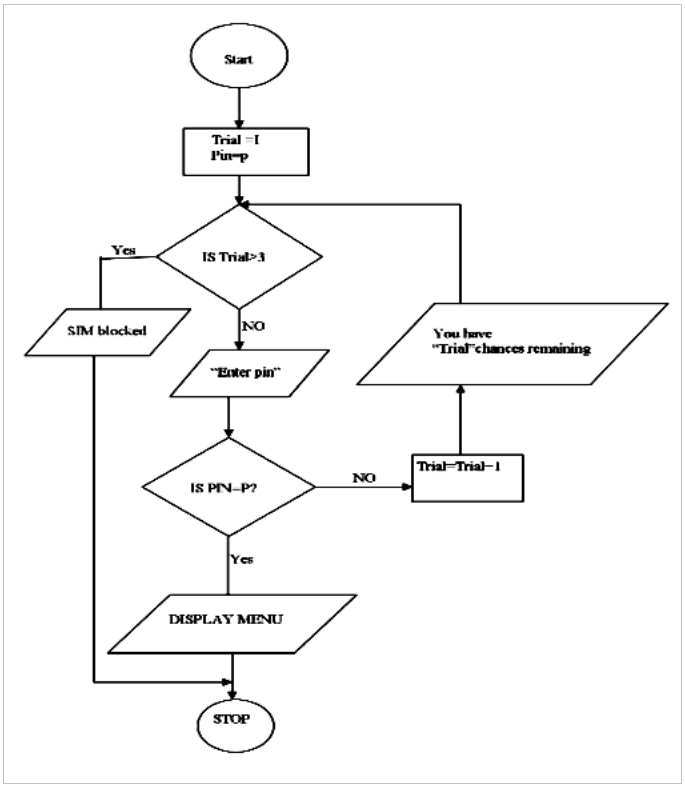
13. - Unshidded twisted pair
    - Shielded twisted pair

14. - **Master files** – main file containing permanent records
    - **Transaction files-** contain individual data about transactions
    - **Reference file** – Used for look- up purpose
    - **Backup files** - hold duplicate copies for security
    - **Sort files –** Created from existing files by arranging data

15. - Icons for commands
    - Wireless communication (LAN)
    - Voice recognition
    - Multimedia e.g video player. Mp3 player
    - Java applications

16. a) - Language processor such as assemblers, interpreter and compliers that convert the sources code into object node.
    b) **Assembler** – translate assembly language into machine language
    Interpreter- translate source code line – by – line allowing CPU to execute one line before translating the next.
    Complier – translate entire source code into object code.

c)



d) Object code – refers to the progion code that is in machine readable form

Source code – program code entered in program editor and is human readable

17. a) Data and information should be vaest secure against loss or exposure

- Data should be transferred to other countries without owner's permission
- Data and information should be accurate and upto date.
- Data and information to be collected for use should be kept for specified

lawful purpose.

b) - **Viruses** – destructive programs that attached itself to other files and instales itself without owner permission

-**Unathorised access** – gainging acess to data or information without permission intentionally or accidentally

- **Complier errors**- caused by people making mistakes when using a program or

developing a program

- **Theft** – stealing of data and information or computer hardware for a gain
- Natural disasters – such as stoms, volcanicity or earth quakes that destroy computer systems.

c) - Check mails
- Compose message
- Send mail
- Saving messages
- Printing mails
- Cultural erosion

- Fraud e.g stealing of credit card number
- Spread of malicious softwares e.g viruses and warms

18. a) - Process of transforming raw data into meaning output
b) - Wrong entry of data
- Wrong dates types

d) i) **Multiprocessing**- processing more than one task at the same time on different processors of the same computer

ii) **Multiprograming** – More than one program are executed apparently at the same time by a single processor

iii) **Realtime** – involves processing of incoming data as soon as it occurs, up – data the transaction file and gives an immediate response that would affect the current as they happen.

iv) Online processing- data is processed immediately it is received

19. a) - Use of electronics devices and software to emulate the neurological structure of the human brain.

b) - Neuronodes can be trained to distinguish between what constitutes what constitutes a signal and what does not.
- are capable of recogning patterns in large amount of data that are too complex for human brain.

c) CVS- is a eye health problem associated with using computer screens with unsuitable screen resulation and at a very close range to the eye.
RSI – injuries resulting from wrist, hard, arm and muscle strain, tendonitis and neck strain due to force repetitive movement

d) EPA- encourage use of devices that saves energy through minimal use of power.

e) -Job creation – new employment opportunities that never existed before
-Job replacement – computer illiterate people have been replaced with those who have desired computer skills
- Displacement – employee moved to another department where computer skills are not required.

f) - Revising current information system and making recommendations on her to replace it with a more efficient one.
- Working with programmes to construct and test the system
- Co- ordinating training for users of the new system
- Project leader

20. - ASCII
- BCD
- EBCDIC

b) i) 101.001_2

Whole part $\Rightarrow (1 \times 2^0) + (0 \times 2^1) + (1 \times 2^3) = 1 + 0 + 8 = 9$

Fraction part $\Rightarrow (0 \times 2^{-1}) + (0 \times 2^{-2}) + (1 \times 2^{-3}) = 2^{-3} = 0.125$

$\therefore 101.001_2 = 9.125_{10}$

ii) $12 \Rightarrow 2^4 2^3 2^2 2^1 2^0$

12-16-12-8- 4 -4 0-2 0-1 $= 0.1100_2$

0 1 1 0 0

0.6875 x 2 = 1

0.375 x 2 = 0
0.75 x 2 = 1
0.5 x 2 = 1
= 12.6875_{10} 1100.1101_2

iii) 110011.0101
$\underline{110.0100^2_2}$
11111.1001_2

d) 13_{10} to binary

13 – 16 13 – 8 5 – 4 1 – 2 1-1
6 1 1 0 1

$13_{10} = 01101_2$ ⟶ 8-bit ⟶ 00001101_2

10_{10} to binary

10 – 16 10 – 8 2 – 4 2 – 2 0 – 1
0 1 0 1 0

⟶ $\begin{matrix}10\\10\end{matrix}$ $=01010_2$ ⟶ 8-bit ⟶ 00001010_2

Ones complement of 00001010_2 ⟶ 11110101_2
Two's complement 11110101_2
$\underline{+1}$
11110110_2

$13_{10} + (-10_{10}) = 00001101_2$
$\underline{+ 111101101_2}$
$(1)\ 00000101_2$
$= 00000101_2$

KAPSABET BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES (THEORY)
PAPER 2
MARKING SCHEME

CUSTOMER 21/05/2012

SumOfCONTR

NAME	GENDER	REGNO	CONTRIBUTION	SUARER ID	POLICY CATEGO	TELNO
JOHN	M	6790	7500	I01	PC01	0728567654
PAUL	M	7956	6500	I04	PC03	0753213456
BEN	M	7980	5000	I03	PC01	0721564786
JIM	M	8790	7000	I01	PC02	0754233445
JANE	F	8950	6700	I01	PC02	0734543321
ALICE	F	9094	5000	I02	PC03	0724345765

INSUARER POLICY 21/05/2012

POLICY CATEGO	POLICY TYPE
PC01	LIFE
PC02	VEHICLE
PC03	HOUSE

INSUARER POLICY 21/05/2012

POLICY CATEGO	POLICY TYPE
PC01	LIFE
PC02	VEHICLE
PC03	HOUSE

INSUARER POLICY

POLICY TYPE	NAME	GENDER	COMPANY NAME
HOUSE			
	PAUL	M	EASY
	ALICE	F	PROMISE
LIFE			
	BEN	M	GATEWAY
	JOHN	M	WORLD WIDE
VEHICLE			
	JANE	F	WORLD WIDE
	JIM	M	WORLD WIDE

CUSTOMER COMPANY 21/05/2012

NAME	CONTRIBUTION	POLICY CATEGO	COMPANY NAM
JIM	7000	PC02	WORLD WIDE
JOHN	7500	PC01	WORLD WIDE
JANE	6700	PC02	WORLD WIDE
ALICE	5000	PC03	PROMISE
BEN	5000	PC01	GATEWAY
PAUL	6500	PC03	EASY

S

SYSTEM IMPLEMENTATION.

For four purposes, the implementation process runs from the point when the systems design has been formally approved to the point when the new system is in place, ready to be used. As mentioned above, a decision could have been made to acquire commercial software for implementing the new system.

The following are the major activities which comprise the implementation process.

(1) Develop detailed programming specifications
(2) Develop test specifications and test data
(3) Write computer programs
(4) Test computer programs
(5) User testing
(6) File conversion
(7) change over to the new system

Again, there is usually significant overlap among the above activities, For instance, file conversion may proceed while programs are being written.

DECISION TABLE

A decision table allows an analyst to set out a clear way in what could be a confusing situation.

		1	2	3	4
Conditions	Purchaser is a member	T	T	F	F
	Purchaser exceeds Ksh. 1000	T	F	T	F
Actions	15% discount	√			
	10% discount		√		
	7% discount			√	
	No discount				√

DECISION TABLE

A decision table allows an analyst to set out a clear way in what could be a confusing situation.

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Actions	15% discount	√			
	10% discount		√		
	7% discount			√	
	No discount				√

BAHATI GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/1 / PAPER 1

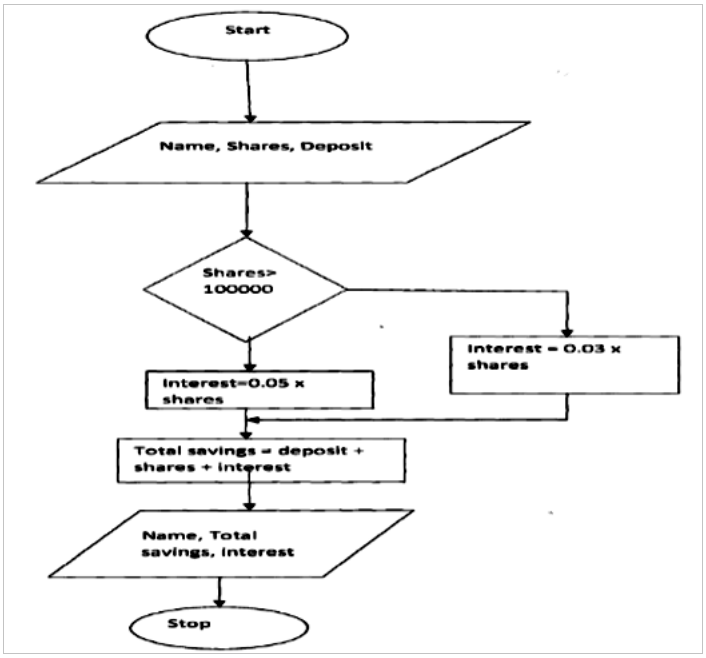
MARKING SCHEME

1. Factors that you would consider before replacing or upgrading a computer memory (3 marks)
   i) Memory capacity
   ii) Type of memory package
   iii) Compatibility with other installed modules
   iv) Whether there is an empty slot
2. Characteristics of a well designed and developed software. (3 marks)
   i) They can be easily installed and run
   ii) Cheaper
   iii) Modified
   iv) Meet user' s needs
   v) Readily available in the market
3. Two web programming languages. (2marks)
   i) Hyper text Markup Languages
   ii) Java Script
   iii) VB Script
   iv) Hypertext preprocessor
4. Three parts of a task bar. (3 marks)
   i) Start button
   ii) Task manager
   iii) System Tray
5. i) (I) Base band — It is a digital generated and applied to the transmission medium directly without modulation. (1 mark)
   ii) Broad band -refers to sending analog signal over transmission medium using a particular frequency. (1 mark)
6. (a) Define the term artificial intelligence (1 mark)
   Artificial intelligence can be defined as a branch of a computer science that is concerned with the development of machines that emulate human like qualities such as learning, reasoning, seeing and hearing.
   (b) List four areas where artificial intelligence is applicable. (2 marks)
      (i) Expert system
      (ii) Natural language processing
      (iii) Artificial Neural networks
      (iv) Robotics /Perception system
7. State three ways of moving round the page in a desktop publishing window (3 marks)
   (i) Using the hard tool
   (ii) Using the scroll bars
   (iii) Using the zoom tool
8. Differentiate between the following
   (i) Insert mode — when text is inserted between words or characters it pushes the existing text away without replacing it while in type over mode when the text is typed between existing words or characters ,the new text automatically replaces the existing text by deleting it.
9. Ways in which horticultural farmers can benefit from the use of information and communication technology. (2 marks)
   i) They can advertise their products
   ii) They can sell their products online
   iii) Communication

10. Mouse clicking techniques (3 marks).
    i) Double clicking
    ii) Right clicking
    iii) Drag and drop
11. State two disadvantages of networking. (2 marks)
    i) Security issues
    ii) High initial cost
    iii) Moral and cultural effects
12. a) sum (B2:B5)
    b) least expenditure. (1 mark)
    = minimum(B2:B5)
    c) Distinguish between filtering and sorting (1 mark)
    Sorting refers to arranging the data in a worksheet in a particular order while filtering is a quick and efficient method of finding and working with a subset of data in a list.
13. Differentiate between bound and unbound control (2 marks)
    A bound control is one whose source of data ia afield in a table or query while unbound is a control that is not connected to any data source.
14. Identify the most appropriate data types for this fields (4 marks)
    (i) Name Text
    (ii) Admission Number Number
    (iii) Fees currency
    (iv) Date Date / Time

I 5. What is program documentation (1 mark)
Program documentation is the writing of the formal support materials explaining how the
program was developed.

16. a) Using a pseudocode
    START
    PRINT “Enter member name, share and deposit”
    INPUT Name, Shares, Deposit



```
If shares> 100000 THEN
    Interest = 0.05 x shares
    ELSE
    Interest = 0.03 x shares
    ENDIF
    Total savings = Deposit + Shares + Interest
    PRINT Name, Total Saving, Interest
    STOP
```

b) Using a flowchart

17. (a) Four activities that are carried out during the system implementation phase (4 marks)

(i) Training of the staff to use the system.
(ii) System changeover ie from the old system to the new system.
(iii) File creation and file conversion to be used in the support of the new system.
(iv) Installation of the new system.

(b) Three reasons why system maintenance phase is necessary in SDLC (3 marks)

(i) To ensure that the system is operating correctly
(ii) To adapt the system to meet the changing requirements of the end user.
(iii) To update the system in response to the changing's of organization.
(iv) To resolve any malfunction in the system.

(c) State two instances where observation is not viable method of gathering information during system analysis stage (2 marks)

(i) When the analyst wants to collect confidential information.
(ii) When there is a large group of people involved in the system.
(iii) When the people you want to gather information from are vastly dispersed.

(d) Various considerations should be made during input design and output design. State three considerations for each case (6 marks)

(i) Input design
- The type of data needed to be input.
- The volume and frequency of data capture.
-The mode and devices of input.
-Layout and sequence of input.

(ii) Output design.

-The target audience
-Frequency and report generation.
-Quality and format of information.

18. (a) Explain what is meant by job scheduling. (2 marks)

-The scheduler decides which of the jobs is to be allocated to the CPU for processing.
-Allocating CPU time to jobs.
-Sequencing ofjobs in a queue.

(b) List and explain three types of user interfaces. (6 marks)

(i) Command prompt/line interface is a form of interface between the operating system and the user in which the user types commands by using a special command language.

(ii) Menu driven interface operating system is a program that uses menus to

present / list choices of commands and available options.

(iii) GUI operating system display format to enable the user to choose commands, start programs and see lists of files and other options by pointing to pictorial representations (icons, WIMPS)

(c) Firmware are -language translators resident in ROM and is used for immediate access by the user of the system.

- Software on ROM or embedded permanently or semi - permanently.
-Software buried on a microchip. (2 marks)

ii) Proprietary software is privately owned software and Can only be used under conditions. Needs a licence to be used.

d) Three computer hardware specification features to consider as a measure of enhancing performance. (3 marks)

-High processor speed
-High primary memory capacity
-High / enough secondary memory capacity.
-High resolution output devices
-Data bus band width.

19. (a) Convert the decimal number 0.5625io into its binary equivalent. (5 marks)

Solution

Fractional part

0.5625 x 2 = 1.125
0.125 x 2 = 0.250
0.250 x 2 = 0.500
0.500 x 1 = 1.000
= 0.1001_2

(b) Find the sum of

00110_2

+

01101_2

10011

1st number	0	0	1	1	0
2nd digit	0	1	1	0	1
Carry digit	0	1	1	-	-
Sum	1	0	0	1	1

(c) Using the ones complement, calculate $31_{10} - 17_{10}$ in binary form. (5 marks)

2	17	
2	8	R1
2	4	R0
2	2	R0
2	1	R0
		R1

17 in binary 000100012 1's complement 111011110

2	31	
2	15	R1

2	7	R1
2	3	R1
2	1	R1
		R1

= 00011111_2

00011111 + 11101110 = (1) 0001101 + 1 = 0001110_2 OR 1110_2

20. (a) The term network topology refers to the way in which computers and other devices have been arranged or how data is passed from one computer to another in the network.

(2 marks)

(b) Ring topology Advantages (2 marks)

i) They use a short length cable

ii) Ring is simple to install

Disadvantages (2 amrks)

i) Modification may be difficult

ii) Trouble shooting can be difficult

iii) One device or media breakdown may affect the entire network.

(c) Five components of the fibre optic cable. (5 marks)

(i) Core

(ii) Cladding

(iii) Buffer

(iv) Strength member

(v) Jacket

(d) Other than the ring topology name other 4 types of topologies. (4 marks)

(i) Bus topology

(ii) Star topology

(iii) Mesh topology

(iv) Tree / hierarchial topology

BAHATI GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

PRACTICAL PAPER 2

MARKING SCHEME

1.

- Ensure the margins are well set
- Ensure the use of tables
- Check spelling
- Fit four copies of the design in a single page (8mks)
- Print out (2mks)

Page header with your name and index number (4mrks)

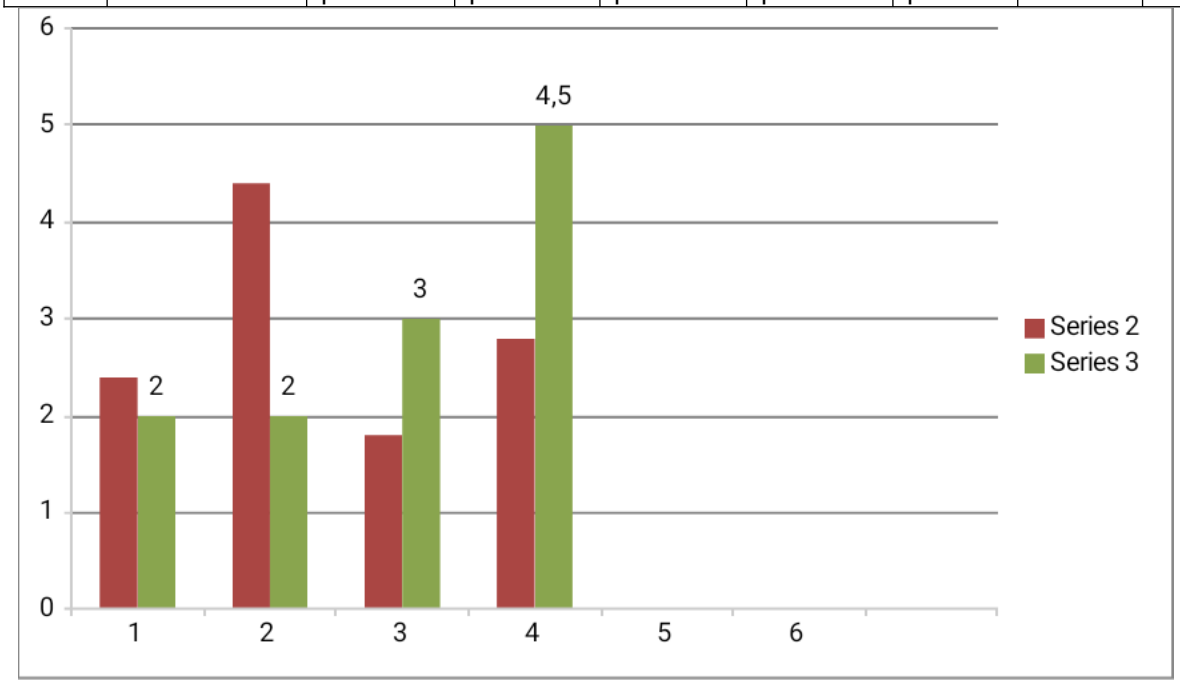
- Saved work. (2mks)
- Each table should be a story of its own. (2mks)
- The Elmore bookshop address be a story

2.

- Check for the formula in each column (10mks)
- All entries well entered. (2mks)
- Saved worked. (2mks)
- Projected work. (18mks)
- Printed work. (2mks)
- Graph. (11mks)
- Averages, expenses, sales and profit. (5mks)

	A	B	C	D	E	F	G	H
1		KALOKA SAFARIS TOURS &TRAVEL						
2				CASH FLOW ANALYSIS 2011				
3								
4								
5								
6								
7								
8		Jan	Feb	Mar	Apr	May	June	TOTAL
9								
10								
11	**INCOME** (sales)							0.10
12	Safaris to Parks	83,394	110,237	114,563	117,329	123,291	108,345	
13	Commission from booking	1,000	2,000	500	1400	3000	2400	
14	Total sales	84,394	112,237	115,063	118,729	126,291	110,745	
15	Interest income							
16								
17	**Total income**							
18								
19	EXPENSES							
20	Advertising	12,000	13,000	13,700	45,000	50,000	54,000	
21	Electricity	2,050	2,050	2,050	2,050	2,050	2,050	
22	Email/Internet	5,000	5,000	5,000	5,000	5,000	5,000	
23	Misc	1000	1200	1400	2300	5,000	2000	
24	Rent	10,000	10,000	10,000	10,000	10,000	10,000	
25	Salaries	20,000	20,000	20,000	20,000	20,000	20,000	
26	Travel	20,000	23,000	30,000	23,000	36,000	45,000	
27								

28	Total expenses	70,050						
29			74,250	82,150	107,350	128,050	138,050	
30								
31	Net income	1,000	2,000	500	1,400	3,000	2,400	
32	Comment	profit	profit	profit	profit	profit	Profit	



KABARAK HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
PAPER 1
MARKING SCHEME

1. Distinguish between parallel and serial cables. (2marks)

   - Parallel cable connects to parallel interface port used to connect printers, optical scanner.
   - Serial cables- connects to com or RS 232 ports, supports transmission if data one bit at a time .They can support data transmission to devices connected 15m away while parallel support short distance.

2. Differentiate between Error Handling and interrupt handling. (2marks)

   - Os alerts users of errors that may arise out of illegal operations e.g software and hardware failures, performs audit check on users.
   - Interrupt handling – when a critical request causes the processor to stop executing the current job to attend to the requested task before returning control to the initial process.

3. Name four malicious programs that can affect your computer system. (2mks)

   - Computer virus - boot sector.
   - Trojan horse.

- Worms.
- Spyware

4. What is meant by expert systems? Name the three components. (4marks)

   - Software designed to make a computer operate at a level of a human expert in a specific narrow area of specialization.
   - Software that stimulates the reasoning process if experts in certain well defined areas such as medical diagnosis.

   i) Knowledge base.

   ii) Inference engine.

   iii) User interface.

5. Name two ways of editing cell entries in spreadsheets. (2marks)

   - Use the formula bar.
   - Double click the cell to be edited.

6. Describe TWO roles of each of the following:

   a) Database Administrator. (2mks)

   - Design and develop database applications for the organization
   - Set up security measures needed to control access to data and information.
   - Keeping the database up-to-date by adding new records or modifying and deleting unwanted records.

   b) System analyst (2mks)

   - Renew current manual or redundant information system and make recommendations on how to replace it with a more efficient one.
   - Work with programmers to construct and test the system.
   - Co-ordinating training for users of the new system.

7. a) Describe two facilities offered by email software such as Ms Outlook. (2mks)

   - Contact management.
   - Attaching of files.
   - Checking mail.

   b) Name other two email software available in the market? (1 mark)

- Yahoo mail, G mail, Endora.

8. State the functions of the following protocols; (2 marks)

a) FTP

Protocol used to transfer files on the internet by downloading or uploading

b) TCP/IP

- Governs how data is transferred from one place to another while IP determines the addressing system on the internet.

9. What is meant by World Wide Web? (2mks)

A virtual space on the internet where information is made available.

10. Explain the difference between Gas Plasma Display and liquid Crystal display monitors. (2mks)

LCD – monitor that are a special liquid called crystal.

Gas plasma – Resemble LCD but use gas instead of liquid crystal.

Images displayed in gas plasma do not suffer from angle distortion.

11. State the purpose of the following field properties in a Database management software

(2mks)

a) Input mask

-Automatically formats the field entry into a specified format.

b) Validate Rule

- Logical expression that restricts the values to be entered into a field, example >=0 and <=100

12. Differentiate between logical and syntax errors encountered in programming. (2mks)

Logical errors

- Not detectable by the translation

Syntax

- Emanate from improper use of language rules such as grammatical mistakes.

13. What is a computational error? Give an example to illustrate. (2mks)

- Errors that occur when an arithmetic operation does not produce expected result.
- Overflow (illustrate using ones or twos complement)

- Underflow
- Truncation
- Rounding errors.

14. Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used Serial file organization. How are files organized on a storage medium using this method? List two advantages offered by this type of file organization.
(3mks)

- Serial file are stored and accessed one after another on a storage medium.

Advantages – simple, cheap.

15. Define the following terms in relation to computer security: (6mks)

a) Data Encryption

- This is where data that is on transit is mixed up in a form that only the sender and receiver can be able to understand.

b) Sabotage

- Illegal destruction of data and information with the aim of crippling service delivery or causing great loss to an organization

c) Firewall

- A device or software system that filters the data and information exchanged between different networks by enforcing the lost networks access control policy.

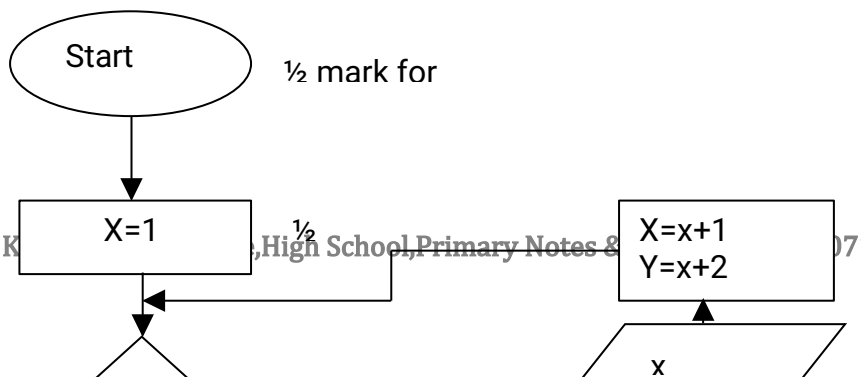
SECTION B (60 MARKS)

16. a)

x	y
1	3
2	4
3	5

Done 4 6 ½ mark each

b)



a) List any four components of Requirement specification made during system development.

(2mks)

- output specification
- input specification.
- File / data stores.
- Hardware & software requirements.
- Processing requirements.

c) Describe three kinds of **program documentation** you would prepare to ensure an explanation on how the program was developed is availed. (6mks)

- User oriented.

- programmer oriented.

Operator oriented documentation.

17. a) Describe the field data types used in the database above. (4mks)

- product number – text-less than 255 character.
- product name- text- less than 255 character
- Qty- number
- Value per unit – currency

b) i) Product names starting with letter P. (2mks)

Like P* or P* in query de sign window.

ii) value per unit below 200. (2mks)

<200 in query design window.

c) i) List and describe four areas of application of spread sheets. (4mks)

Forecasting

Mathematical and scientific

Accounting

Statistical analysis.

ii) Explain data range, legend and axis as used in spreadsheet charts. (3mks)

Legend – equal to a key in a manually drawn chart. Pattern represents data series.

Data range- Adjacent / non adjacent cells that are being graphed. Group the cells that form the chart.

Axis- Y- axis/ X- axis

18. a) What is automated production. List two advantages and two disadvantages of

automated production. (5mks)

where processes in a manufacturing company are controlled by computers.

Advantage- increased efficiency

- Improved customer service.
- Efficient utilization of resources.

Disadvantage – High initial cost, unemployment.

b) i) Name three ways of representing signed binary numbers (3mks)

- Prefixing an extra bit to a binary number.

- using one's complement.

- Using two's complement.

ii) Convert $5D6_{16}$ to Binary (2mks)

010111010110_2

iii) Describe any four activities that take place during implementation stage of a

system . (4mks)

- File conversion.
- Staff training.
- Change over
- Security control measures.

c) Define the following terms as used in DTP software.

i) Cropping

- Hide unwanted parts of a graphic that you don't want to print.

ii) Rotating

- Transformation of an object that changes it's angular placing.

19. a) State and explain any four operating system disk management utilities. (8marks)

- Formatting – preparing new disk for use by printing sectors, tracks on the surface of the disk.
- S canning- Helps the user to check and repair minor drive problems such as lost storage locations.
- Defragmenting a disk – consolidating fragments on a disk so that each file occupies a single, contiguous space on the drive.
- Compressing- Reducing the amount of space the files occupies on a drive.
- Backing up of data – enables users to create copies of data and programs.
- Partitioning – Process of dividing large physical disk into 2 or more patitions

called logical drives.

b) i) What is system maintenance? (2mks)

- Adjustments and enhancement of requirements or correction of errors after the system has been implemented.

ii) **Define** the following terms in relation to computer software .

a) Free ware.

- Software products that are freely made available to the use.

b) Propriety

- Those are software whose source code is hidden for users.

c) Open source

- These are software whose source code is available to the user and are encouraged to modify, distribute and use.

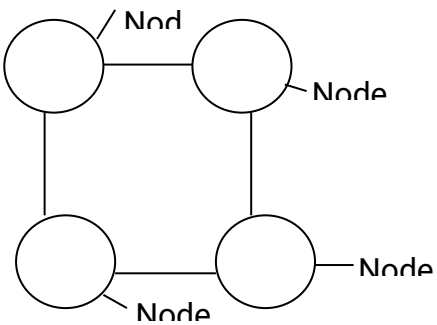
iii) List any four likely causes of data and program loss in a computer system?

(2mks)

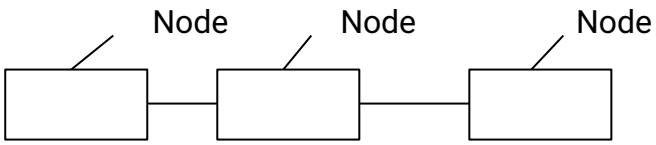
- Viruses
- Hardware fault
- Theft
- Network breakdown.
- Program failure.
- Vandalism
- Unstable power.

20. a) With the aid of a diagram explain the following network topologies (6mks)

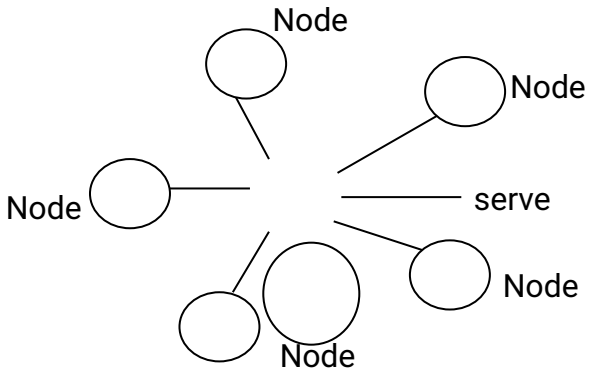
i) **Ring topology**



ii) **Bus topology**



iii) **Star topology**



b) Define the following terminologies in relation to networking. (4mks)

i) Crosstalk

- Disturbance caused by the electric or magnetic field of one telecommunication signal

affecting a signal in an adjacent circuit.

iv) Frequency

- o No. of cycles by unit time e.g. frequency indicator.

c) State two advantages of and two disadvantages of wireless communication (4mks)

- Advant.
- Flexible in operation.
- Span large geographical areas easily.
- Can reach remote areas that do not have high physical Infrastructure.

d) List down one major advantage of networking

- Cost effectives.
- Reliable.
- Remote communication
- Resource sharing.

ii) Noise

- Unwanted electrical or electromagnetic energy that degrades the quality of signals and data. Occurs in digital and analog.

iii) attenuation

- Decrease in magnitude and energy as a signal progressively mones along a transmission medium.
- Loss of signal strength as it travels along a communication medium.

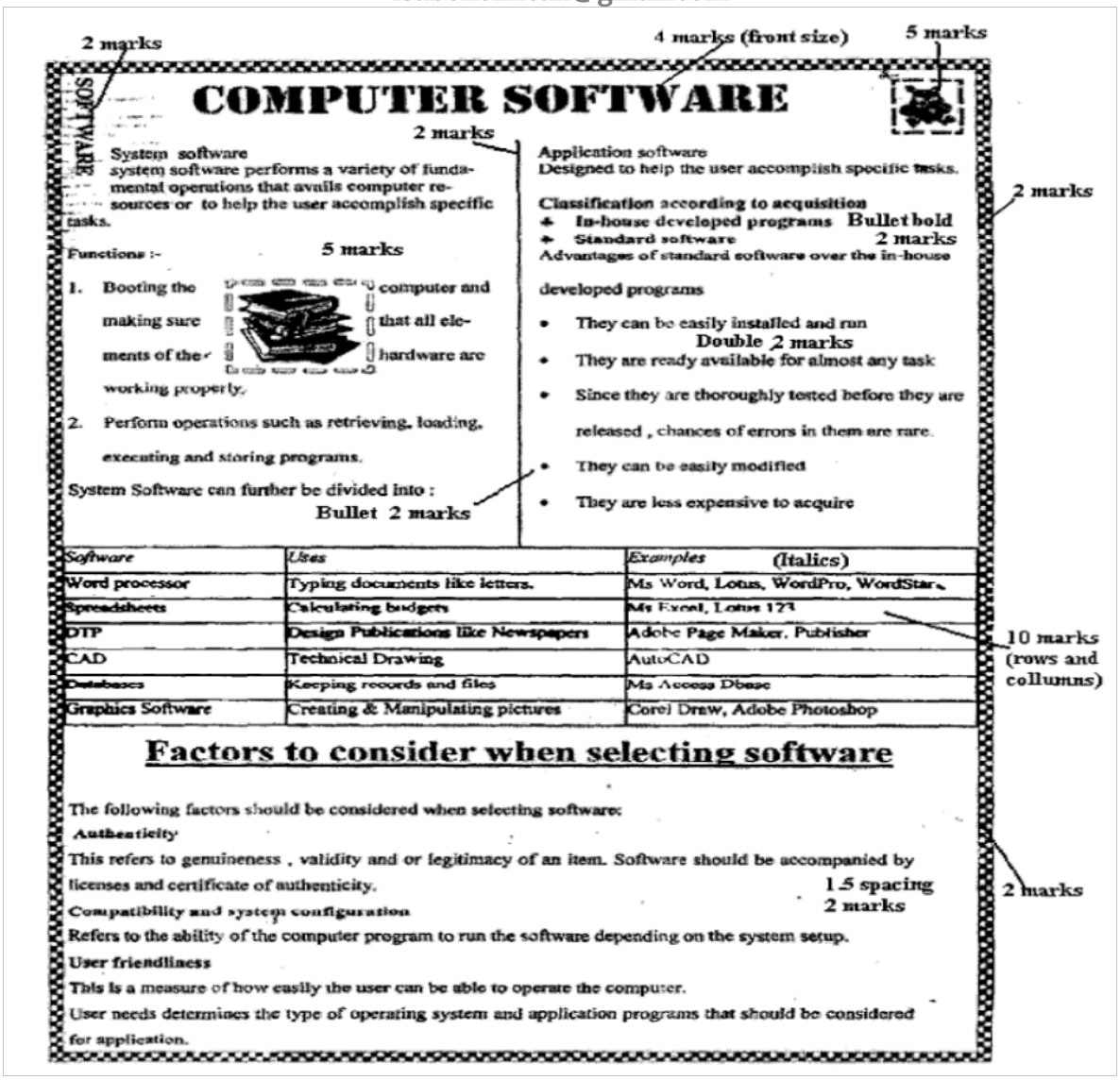
KABARAK HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES 451/2 /
PAPER 2
MARKING SCHEME

	Question 1 DATABASE	MKS

	a)	Creating Database	1
	b)	Creating Table	
		Fields	1
		Data Types	1
		Field Size/format	1
	c)	ADM Number as primary key	2
	d)	Saving as students Table	2
	e)	Entering records in the table	3
	f)	Record insertion	2
	g)	Deleting record	2
	h)	Sorting – ascending order	2
	i)	Moving fields	4
	j)	Surname filed size 20	1
	k)	Form creation	2
		Naming form as students entries	1
		Inserting unbound control	1
		Correct function	3
	l)	Inserting picture in the form	3
	m)	Report creation	3
	n)	Inserting picture in report header	2
	o)	Query_1	4
		Query_2	3
		Query_3	3
	p)	Printing each 0.5mks	3
		Total marks	**50**

Question two

DOCUMENT USING DTP SOFTWARE



Spelling and grammar	2marks
Lay out	2marks
Margins–left, right, top, bottom	2marks
Printing	2marks
Saving	2marks

SACHO HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
PAPER 1 / 451/1
MARKING SCHEME

1. (i) Desktop computer
   (ii) Laptop computer
   (iii) Palmtop computer / notebook. (3mks)
2. (i) Computers process data faster
   (ii) Computers are more accurate
   (iii) Computers are more efficient. (3mks)
3. (a) This is the process of dividing a large physical disk into two or more partitions called
   logical drives (lmk)
   (b) (i) The user may intend to install more than one operating system on the

same disk.

(ii) For purpose of backup on the same disk but different partitions.

4. (i) A good computer must have high processor speed. (½ mk)

(ii) It is important to understand the terms and conditions of after selling a product in case of failure or malfunction that is whether the seller is ready to provide after sale services.

(½ mk)

(iii) The best convention would be to buy a computer that can easily be upgraded to

accommodate emergent technologies. (½ mk)

(iv) Smaller computer enhances mobility. (½ mk)

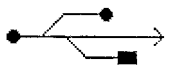
5. (i) Help in transferring an application from a secondary storage :to a primary storage when running the application. (lmk)

(ii) Help in tracing and removing errors from a program. (lmk)

(iii) Linkers enable several programs (modules) to subroutines to be connected when

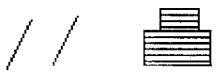
running (lmk)

6. a)



b)

c)



7. (a) Set a printer as a default.

(b) The printer may have been configured to the wrong port.

(c) Check the picking mechanism of the paper.

(Award 1 mark for each correct answer)

8. (a) Optical scanners capture data using the principle of light. (lmk)

Examples - Optical mark recognition. (½ mk)

- Optical bar recognition (½ mk)
- Optical character recognition

(b) Magnetic scanners capture data by using the principle 2 magnetism.

Examples — MICR (½ mk)

Magnetic strip recognition (½ mk)

9. (ii) It is a feature which enables text to automatically flow to the next line if the end of

the current one is reached. (lmk)

(iii) Thesaurus is a feature used to find synomus and autonymus. (lmk)

10. (a) A robot (award 1mk)

(b) Incase of explosive the life of human being in control is spared (Award 1mk)

11. - EFT allows customers to do purchases using their ATM and credit cards without involving direct cash system.

- EPOS the prices of the items bought are tagged so that by swapping them on the scanner sends the prices to computer (each 2 mks — total 4mks)

12. A magnetic disk is direct access storage media (DASD) that permits the computer to find data directly on the disk. (2mks)

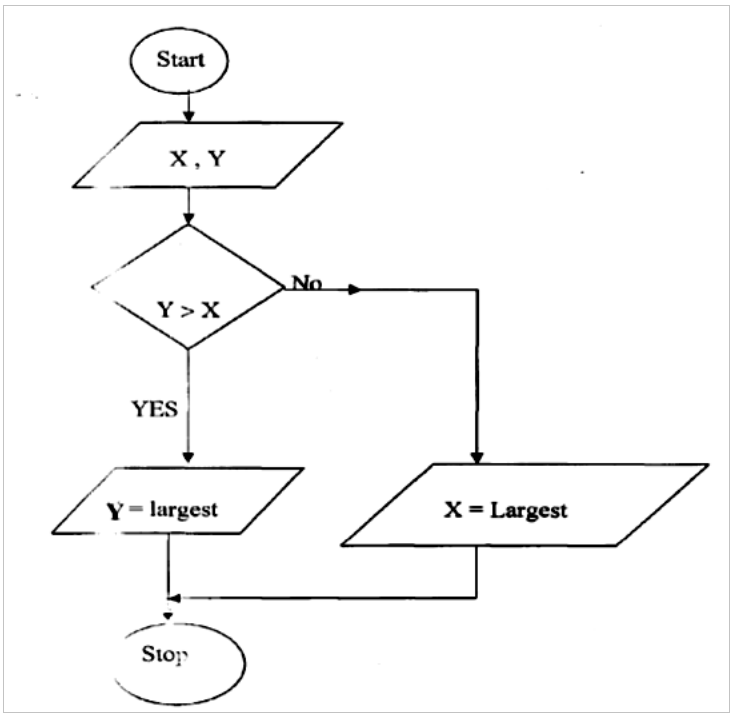
13. Hard disk provides greater storage capacity than the floppy disk (1 mk)
Hard disk operates or much higher retrieval speed. (1 mk)

14. Testing is done to find out weather the system meets all requirements defined. (1 mk)
If is also important to test weather the system has some failure so as to be corrected before
Implementation. (1mk)

15. straight changeover
Parallel changeover
Phased change over
(1mk)

16. a) i) Program code that the programer enters in a program editor window that is not translated into a machine readable form.
ii) Program code that is in machine readable form.

b) Start:
print" Enter two number X and Y
Input X, Y
If Y > X Then
Print"
ESE
Print X
End if
Stop



17. a) Record- a co1lection a of related fields that represent a single entity
File - a collection of related records that give a complete set of information about a certain item

Database a collection of related tables s (1 mk each)

(b) (i) install latest antivirus s/w Scan mail attachments before opening
Scan external storage (devices before opening them

(ii) Cu- coordinates instructions in the cpu
Alu-used to perform arithmetic and logical functions
mm- used for primary storage.

18. a) $747_8 \longleftrightarrow X_2$

$1,1110,0111_2 \longrightarrow 1147_{10}$

$\longrightarrow 1E7_{16}$

b) $6_{10} \longrightarrow 110_2$

Ones compliment of $110_2 \longrightarrow 001_2$

c) - Not prone to errors
- Simple systems to use. 2mks

d) Loss of signal strength along a transmission channel after a signal propagates a long distance.

e) Single mode – type of a fibre optic cable in which only one signal can be propagated through the channel at a time. (2mks)

Multi – mode – a type of fibre optic cable in which several signals can be transmitted through the channel at a time. (2mks)

f) convert 7.125_{10} to binary

$7_{10} \longrightarrow X$

	1	7
	2	3 rem 1
	2	1 rem 1
	2	1 rem 1
		0 rem 1 = 111

0.125_{10} X_2

0.125 x 2 = 0.25 carry 0

0.125 x 2 = 0.5 carry 0

0.5 x 2 = 1.0 carry 1

= 0.001

$\therefore 7.125$ 111.001_2

19. i) - E learning
- Simulation to demonstrate scientific concepts
- Research on the internet.
- Computer aided learning (CAL) and computer aided teaching (CAT)
(1mk for 3mks)

ii) a) Pressure pads (1mk)

b) Cheaper tan modifying to the real object/ system.
- Enables a detailed insight to a problem.
- Less dangerous (2mks)

iii) Software engineer – designs the logic of various programs for performing various tasks. (1mk)

Computer engineer - designs new hardware devices e.g processor. (1mk)

iv) Modifying the website.
Updating the website.
Troubleshooting and adding information to a website (1mk x 3)

20. a) i) User interface – Displays screen that enables the user interact with the

system.

ii) Knowledge base – This is the expert systems database of knowledge about a particular subject. It contains relevant facts, beliefs, assumptions and procedures for solving a particular problem.

iii) Interference engine – is a software that applies the rules from acknowledge base in the data provided by the use to draw conclusion (Award 2mks for each of the three correct option)

b) - Computer technician
- Computer engineer (award 1mk for each of the correct answer)

c) - Swift Kenya
- Africa on line
- Today's online
- Wananchi online
- Interconnect (Award 1mk for each of three correct option)

d) - E.mail (electronic mail.) Exchange of electronic letters, data and graphics on the internet.

- E- learning (Electronic learning) learning through interaction with special programs on the computer.
- E – Commerce (Electronic Commerce) Trading activities over the network environment.
- World wide web (www) – Internet server that allows connection of a network to the internet.

(Award 1mk for each of the four correct answer)

SACHO HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/2 / PAPER 2

MARKING SCHEME.

1.

AdmNo	Maths	Eng	Kisw	Bio
1	45	67	90	23
10	45	89	90	20
2	56	70	80	45
3	89	90	90	20
4	78	30	90	50
5	67	89	60	90
6	67	90	40	80
7	34	78	70	90
8	23	50	38	90
9	23	15	67	20

Student

14/05/2012

AdmNo	FName	LName	KCPE Mark	Year of KCPE
1	Peter	Barasa	327	2007

Boarding

AdmNo	Yes/No	Tool No	Tool Name
1	No	12	Jembe
10	Yes	20	Jembe
2	No	11	Panga
3	Yes	1	Slasher
4	Yes	111	Jembe
5	No	15	Rake
6	Yes	22	Basin
7	Yes	11	Brooms
8	Yes	90	Rake
9	Yes	23	Bucket

Total

AdmNo	Yes/No	FName	KCPE Mark	Maths	Eng	Kisw	Total
1	No	Peter	327	45	67	90	202
10	Yes	Johnson	250	45	89	90	224
2	No	Alex	340	56	70	80	206
3	Yes	Chepkuto	250	89	90	90	269
4	Yes	Wekesa	450	78	30	90	198
5	No	Alex	410	67	89	60	216
6	Yes	Jane	400	67	90	40	197
7	Yes	Mathew	450	34	78	70	182
8	Yes	Nasimiyu	290	23	50	38	111
9	Yes	Kimathi	300	23	15	67	105

ADMINISTRATION

Total	KCPE Mark	FName	AdmNo
105	300	Kimathi	9
111	290	Nasimiyu	8
182	450	Mathew	7
197	400	Jane	6
198	450	Wekesa	4
202	327	Peter	1
206	340	Alex	2
216	410	Alex	5
224	250	Johnson	10
269	250	Chepkuto	3

INTRODUCTION TO COMPUTERS & OPERATING SYSTEMS

A computer is an electronic device that can solve problems by accepting data, performing certain operations on that data (processing) and presenting the results of those operations (Information) Basic characteristics that distinguish a computer from other information processing devices:

i) A computer is electronic - That is, all its processing operations are carried out with electrical signals.

ii) A computer can store information for future reference - This is done on temporary basis with memory circuits and permanently with storage devices such as magnetic disks and tape.

iii) A computer is programmable - Unlike other devices built to perform a single function, a computer can he instructed to perform a variety of tasks.

NETWORKING BASICS

The Hardware

Network Interface Cards (NIC)

Firstly, each computer must have a network card Computers that run Windows generally use PCI NICs (Network Interface Cards), although there are other types available, including USB NICs. The PCI NICs tend to retail very cheaply and many newer PCs and laptops come with 10/100 NICs inbuilt.

Switches and Hubs

Secondly, you need a piece of hardware to connect your computers together. There are various options:

- **A hub.** In a hub, any information arriving in the hub from any computer is sent to every computer connected to the hub. This is the most basic form of network connection device and has largely been superseded by
- **A switch**. The switch learns which computer is connected to each port, so when it receives a data packet destined for a specific computer the switch will only send that data packet to that specific computer.

The alternative to buying a switch is to use a special cable called a cross-over cable. This is a specially wired cable which will allow you to connect two computers directly, however in my experience all but one situation where a cross-over cable has been initially bought it was eventually been replaced

with a switch.Some switches have printer ports on them, which is useful for windows but less so for RISCOS, unless you have a printer that you have a RISC OS printer driver for more of this later.

Routers

Routers are special types of switches which make a direct connection to the internet and allow all computers to access the internet via the router. They usually include firewalls, DHCP servers and can have additional functionality such as web page filtering and VPN termination. If you wish to just connect RISC OS computers to the internet, this is perhaps the best way to go. Routers can be purchased which will access ADSL or Cable broad band or even 56k dial-up lines.

Cables

Thirdly, you will need network cables. The maximum length between any two pieces of hardware (computer-switch or computer — computer) is l00m. They can come in all sorts of colours and can be hidden in walls, behind skirting boards and through ceilings. Note that unless you are connecting two computers together directly, you will need normal cables and not cross-over cables.

Network speeds

With cabled networks there are three main speeds

>10 megabit or 10-base—I
>100 megabit or 100 base — T
> 1 gigabit or 1000 base — T

2.

Q Compnetwork 2

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Introduction to Computer
Networking & Hardware Requirements

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< 10 megabit or 10-base — T
< 100 megabit or 100 base — T
< 1 gigabit or 1000 base — T
< Introduction to Computer

STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER

451/1 / PAPER 1

MARKING SCHEME.

SECTION A (40 marks)

1. **Define the following terms as used in computer.**

a). **Firewalls** (1 mk)

- It is a program or hardware or a combination of both that filters the information coming through the Internet into a computer.

b). **Data encryption**. (1 mk)

- It is the encoding of data during storage or transmission so that it cannot be understood by those who do not have encryption key.

2. **What is an embedded computer?** (2 mks)

- It is a dedicated computer that is attached to a machine to perform a specific task i.e. special purpose computer used inside a device

3. a) **State and explain the three mouse techniques**. (3mks)

- Clicking — It can be left/right clicking to take a cursor to a particular position or make selection while right clicking is display a menu to make a selection from
- Double clicking — This is to open file/folder with quick succession using the left button of the mouse
- Drag and drop — Take an object from one location to another by holding on the left button and release afterwards

b) Give one reason why a computer is referred to as an electronic device (1mk)

- It uses electrical signals to process data
- It is made up of electronic components and uses electric energy to

operate

4. List four fields which would be expected in a database file of information about students in a school. (2mks)

Name
Admn. No.
Class
House/dormitory,
Stream
Gender/sex

5. State three changeover strategies that can be used to move from the old system to a new one. (3mks)

- Straight changeover
- Parallel changeover
- Phased changeover

6. What is the meaning of the following as used in word-processing: (2 mks)

a) Word wrap

Automatically move to the next line of a word that does not fit at the end of a line thus avoiding breaking up of words

b) Drop caps

A feature used to enlarge the first letter of a paragraph so that it drops to cover 2 to more lines in the paragraph.

7. Explain the meaning of legends as used in Excel. (1 mk)

- This is a key which explains the colour used in charts what it means.

8. a) List any four examples of DTP software available in the market today. (2 mks)

- Adobe PageMaker
- Corel Draw
- Microsoft Publisher
- Ventura

b) What is the difference between the pasteboard and printable area? (2 mks)

A paste board is a large blank area where you place text and any graphical objects for the purpose of rearranging them neatly before placing them on the printable area.

A printable area looks like a page surrounded by margins found on the pasteboard. Any text or object found / placed here will be printed out.

9. What is the difference between looping and selection? (2 mks)

- Looping executes the same block of code (module) again and again until a certain condition is fulfilled, while selection execution of a statement(s) depends on a condition that returns true/false Yes / No

10. Name the stage of program development cycle when: (2 mks)

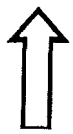
i) A user guide would be written Documentation
ii) A programmer dry-run the code. Testing and Debugging
iii) System charts would be drawn Program Design
iv) Staff training is done. Implementation

11. Name and explain the function of the following key symbols.

i) (2mks)

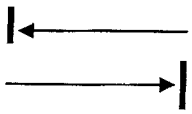
Enter - Used to execute commands
- Used to move the cursor insertion point to the next line

ii) (2mks)



Shift - Used to change lower case to uppercase characters and other keys with two symbols/letters.
- Used together with direction keys to select highlight characters or cells

iii) (2mks)



Tab — Used to move the cursor at intervals.

12. Explain four reasons which make microcomputers suitable for personal computing work (2mks)

- Reduced cost, i.e. are cheaper than the minicomputers & mainframe computers
- Have high processing speed
- Are small in size (occupy less office space)
- Are more energy efficient (i.e. consume less power)
- Are more reliable in doing various functions than the early mainframe computers
- Are versatile (i.e. can be used for many different tasks)

13. a) Explain the following terms as used in Ms Excel spread sheet package. (3mks)

a) Range
- A range is a rectangular arrangement of cells specified by the address of its top left and bottom right cells, separated by a colon(:) e.g. (Al: B8)

b) What if analysis
This involves changing the value of one of the arguments in a formula to see the difference the change would make on the result of the calculation

c) Automatic recalculation
This is a feature in electronic spreadsheet which automatically adjusts the result of a formula if the values in worksheet are changed

14. Explain the following computer crimes (2mks)

a). Fraud -use of computer to conceal information or cheating other people with the aim of getting money.

b). Alteration. - changing the data or information without permission with an aim of miss informing others

15. State and explain the three parts of a task bar. (3mks)

Start button - this is on the extreme left end with a word start together with a Microsoft logo- It is used to access programs as well as shut down the

computer.

Task Manager - this is the middle part of the bar which displays any task / program

that is running System tray- this is the right most part which bears the system clock

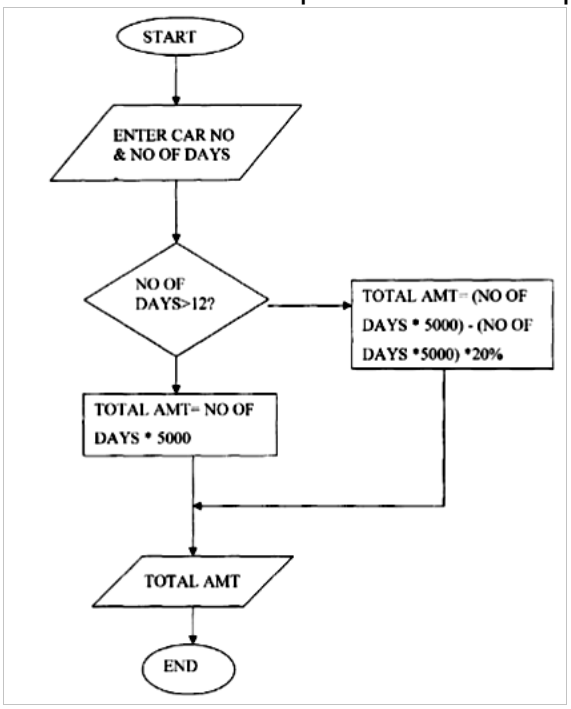
SECTION B: (60 marks)

16. a) Nakuru car rental firm leases its cars for Ksh.5000.00 per day. The managers give a

Discount based on the number of days that the car is rented. If the rental period is greater than 12 days then a 20% discount is given. Write a pseudo-code to accept a car number and the rental period, and calculate the total amount earned by the company when a car is leased. (5mks)

```
START
        ENTER CAR NO
        ENTER NO OF DAYS
IF NO OF DAYS>12 THEN
TOTAL AMT= (NO OF DAYS * 5000) - (NO OF DAYS *5000) *20%
ELSE
TOTAL AMT= NO OF DAYS * 5000
END IF
END.
```

b) Use a flowchart to represent the above pseudo-code (5mks)



c) Identify three advantages of using modular programming in system

development.

(3mks)

- To enable program be developed in stages hence the programmer can concentrate on one task at a time
- It allows a large program to be written by several people hence saves time
- A single module can be used by different programs rather than creating same module in different programs.
- Modules can be tested individually hence easier to debug as they are short errors can be traced easily
- Program modification is easier since changes can be isolated within specific modules.

d) Why is observation sometimes disadvantageous when used in fact finding? State two reasons
(2 mks)

- Likelihood of change of work performance in the people under study
- Faced by time limitation
- Limited by distance
- Standards may change due to break down of machines and one may get wrong impression.

17. a) State any two symptoms of the following computer work-related disorders and two methods of prevention.

i) Computer vision syndrome. (4 marks)

Symptoms
- Sore, tired, burning and itching or dry eyes
- Blurred or double vision
- Headache or sore neck
- Increased sensitivity to light

Prevention
- Take a break of 5 to 10 minutes
- Reduce glare and reflection from the computer screen
- Adjust the contrast and brightness of the screen
- Prevent eye strain by adjusting the sitting height
- Gentle message your eyes

ii) Repetitive strain injury. (4 mks)

Symptoms
- Numbness in the thumb or in fingers
- Extreme pain at the wrist
- Tingling in the finger

Prevention
- Take frequent breaks
- Position as the keyboard

b) Explain any two factors that should be considered during output design.
(2mks)

The target audience or type of recipients
Frequency of report generation
Quality and format required

c) List six devices located under the cover of the system unit (3mks)

- Central processing Unit (CPU)

- Motherboard
- Power supply unit
- Main memory
- Hard disk
- Disk drives
- Battery
- Buses
- Input/ output ports
- Video card
- Expansion slots

ii) Repetitive strain injury. (4 mks)

Symptoms

- Numbness in the thumb or in fingers
- Extreme pain at the wrist
- Tingling in the finger

Prevention

- Take frequent breaks
- Position as the keyboard

b) Explain any two factors that should be considered during output design. (2mks)

The target audience or type of recipients
Frequency of report generation
Quality and format required

c) List six devices located under the cover of the system unit (3mks)

- Central processing Unit (CPU)
- Motherboard
- Power supply unit
- Main memory
- Hard disk
- Disk drives
- Battery
- Buses
- Input! output ports
- Video card
- Expansion slots

d) Differentiate between a compiler and an interpreter. (2 mks)

Complier	Interpreter
- Fast in translation	Relatively slow translate line by line
- Translate whole program at once	Translate line by line take less memory
Take up large memory space	Take less memory Every time program in run hence
-Saves time because Exe file is saved	Every time program is run hence consume time

18. (a) Identify and explain three areas where computers are used to process data (3 mks)

Supermarkets

- For stock control i.e. records of what is in store, what has been sold, and what

is out of stock
- For calculating customer's change
- For production of receipts
- It can be used as a barcode reader

Banks
- Manage financial transactions through the use of special cash dispensing machines called ATMs used for cash deposit & withdrawal services
- Processing of cheques
- For preparation of payrolls
- Better record keeping & processing of documents
- Provide electronic money transfer facilities

Homes
- Entertainment e.g. watching movies, playing music, playing computer games
- For storing personal informational documents
- For calculating & keeping home budgets

Industries
- To monitor and control industries processes through the use of robots
- For management control, i.e. to keep track of elders, bills and transactions
- For advertisement purposes, which enable an industry to attack more customers Police stations
- Matching, analyzing & keeping databases of fingerprints
- For taking photographs & other identification details
- For record keeping
- For face recognition, scene monitoring & analysis which help the police carry out criminal investigations speedily

Transport industry
- Airports; to control the movement of aircrafts, their take off & landing using radar equipment
- For making reservations (booking purposes)
- Storing flight information
- Automobile traffic control; to monitor vehicle traffic in busy towns
- In Railways corporations; to coordinate the movement of goods & wagons
- In shipping control, for efficient management of fleets, cargo handling & communication & Offices
- For receiving & sending of information through e- mails, fax, etc
- Production of documents
- Keeping of records
- And any other application areas

b) Computers have evolved through a number of generations. List any 4 characteristics of the first generation of computers. (2mks)
- Large in physical size
- Relied on thermionic valves/vacuum tubes to process and store data
- Consumed a lot of power
- Produced a lot of heat
- The computers constantly broke down due to the excessive heat generated; hence were short- lived, and were not very reliable
- Their internal memory capacity! size was low
- Processing speed was very slow
- Very costly
- Used magnetic drum memory

c) Differentiate between Cache and Buffer memories. (2mks)

Buffer - Control the speed difference between communicating device or Control the speed imbalance between two devices

Cache - It boost CPU processing speed because the CPU can access it much more quickly than RAM

d) State three advantages of wireless communication. (3 marks)

- Flexible in operation — one move around without losing access to the network
- Covers a large geographical area easily
- Covers remote areas where physical infrastructure like cables is expensive

e) Explain the following terms as used in data communication. (3 marks)

(i) Multiplexing - it is the process of sending multiple data signals over the same medium

(ii) Bandwidth - it is the maximum amount of data that a transmission medium can carry at any one time

(iii) Base band signal- it is a digital signal that is generated and applied to the transmission medium directly without modulation.

f) Explain the use of these communication devices. (2 marks)

i) Routers - It interconnect different network. It directs data efficiently towards its intended destination across a network

ii) Hub - It is a device in a network that transmit signals by broadcasting them to all the computers on the network. The computer whose address is on the message picks the message from the network that is part of the broadcast domain.

19. a) Describe the following careers in the computing field. (3mks)

i) Computer Engineer - This is a person who is skilled is designing and developing computer components such as storage devices and other electronic components

ii) Software Engineers - This is a person who is skilled in software development and technical operation of a computer hardware.

iii) Computer technician - This are skilled persons who maintain, upgrade and repair computers to ensure that all the devices are in good working condition

(b) (i) Give any four advantages of using a fibre optic cable in data transmission (4 mks)

- Cannot be affected by electromagnetic interference
- Offers fast transmission rates than other media
- Supports high bandwidth or can transmit large volume of data at once
- Less prone to transmission impairments or has low attention
- Eaves dropping is difficult to be done
- Takes limited or less space (ii) Name two types of fibre optic. (1 mark)
- Single mode
- Multi mode

c) State the use of the following devices (2 mks)

(i) Light pen

- It is used to make selections in CAD
- It is also used to draw objects from shapes that appear as icons on screen

(ii) Graphics tablet.

- They are used to trace or draw highly detailed engineering and architectural

drawings
and designs.

d) Name any two advantages of solid-state memories over other storage media. (2mks)
- Does not require a drive to read or write to them
- Light

e) List four factors to be considered when choosing an electronic data processing method. (4 mks)
- Type and size of business
- Timing aspects of the information produced.
- Link between applications.
- Volume of data records held in the organization.
- Cost of acquiring the relevant hardware, software, storage media, etc & the cost of maintenance

20. a) List and explain the functions of computer buses. (3mks)
- Data bus — Carries data to and from the CPU i.e. pathway where the actual data transfer takes place
- Address bus - Used to locate the storage position in memory where the next instruction or data to be processed is held.
- Control bus - It is the pathway for all timing and controlling functions sent by the control unit to other parts of the system.

b) The formula = $B2 + C$4 is entered in cell C5 and then copied to DI0. Write down the formula as it appears in the destination cell. (2 mks)
= $B7 +D$4

c) Give two reasons why smaller computers like Laptops tend to be more expensive than Desktop computers (2 mks)
- The technology of producing smaller devices is expensive
- They are convenient because they are portable
- They have advanced power management capabilities (they consume less power since a laptop can operate on rechargeable batteries

d) Giving an example, name three categories of post secondary institutions where one can advance computer skills after sitting for K.C.S.E. (3 mks)
i) Universities — Kenyatta, Nairobi, JKUAT, Egerton Universities
ii) Polytechnics — Kenya, Mombasa, Eldoret, Kisumu polytechnic
iii) Colleges — Institutes e.g. public and private colleges

e) List four examples of
i) Third generation languages. (2mks)
- Pascal
- BASIC
- FORTRAN
- COBOL

ii) Object oriented languages. (2mks)
- Simula
- Java
- Small Talk
- C^{++}

f) Define the term ergonomics (1 mark)
- It is a science that determines the best working condition for humans who work with machines

STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/2 / PAPER 2
MARKING SCHEME

1. (a) Worksheet with lines and borders (lmk)
Correctly typed data in full (3mks)
saving with correct name (lmk)

(b) i Typing of the titles; "SURA MBILI HIGH SCHOOL" in cell Al subtitle "Post of
Headboyship General election in cell A2 (lmk)
Bolding, Font size 18 then centering across the cells of spreadsheet (lmk)

ii Header "Mawesse Joint mock-Marakwet West District" (lmk)
Footer indicating the name of the school (lmk)

iii Deleted record of Saida Shida Saidi (lmk)

iv Corrected record of Bibiana Kombora for Formi from 0 to 1 (lmk)

(c) i Total for Mandela Morphat in cell H6 and copied formula Sum(D6:G6) (2mks)

ii Total votes for Formi class and copied formula across in cell D18D6:D17 (2mks)

iii Average votes: for: each candidate in cell 16 AVERAGE (D6:G6) (2mks)

iv The record of Kiptoo Rotich be moved to be between Iduli Shibuta Ann and Shiundu Martin (2mks)

(d) A Formula in cell C20 to count all candidates not paid registration fee
= Count if (C6:C 17") (3mks)

(e) i Inserted new blank column after registration fee with a label % increament in cell
D5 and a value 1.39 in cell C5 (2mks)

ii In cell D6, used absolute formula to predict new registration fee (6*C5) (3mks)

iii Formula in cell E22 determining sum of the spoiled votes
= E4 - Sum (E6:E17) (2mks)

(f) i Formula in cell E23 to determine/count number of candidates whose votes were 30 and above
=Count If(E6:E17,">30") (2mks)

ii The formulae in cell E24 to determine Highest votes in each class MAX (E6:E 17) (2mks)

(g) i The formula to determine the election winner in K6

= If (And (E6>45, F6>50, G6>25, H6>60, 16>200),
"Head boy Winner", "Looser"

ii In cell L6, a formula determine remarks basing on average votes
=1f (J6>=55,"Headboy", If (J6>=40,"prefect","unpopular")
(6mks)

iii Filtering a list of prefects and Head boy (lmk)
Copying and pasting in sheet2 and renaming the sheet to prefects
(lmk)

iv Sorted records in descending order of average votes for each candidate
(lmk)

(h) i Presence of a column chart on a new sheet
(lmk)

Displaying of candidates names and Average votes only
(lmk)

ii Sheet of chart be renamed as 'Graph' (½ mk)

(i) Labeled Chart title as"Head Boys" election 2008"
(lmk)

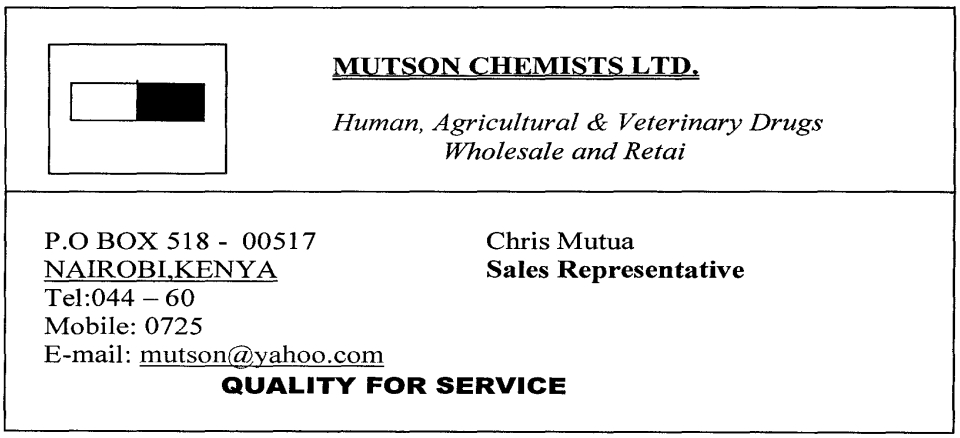
Correcting and appropriately labeled X and Y-axis
(lmk)

The legend /key be on right of chart
(lmk)

(j) Printing
Sura Mbili Election 1 (½ mk)
Election 2 (½ mk)
Election 3 (½ mk)
Finalized Election Sheets: Prefects (½ mk)

Graph (½ mk

2. (a) Use a DTP software top design the following (30mks)



(i) Correct fonts and font style in every font section
(lmk)

2 x 7 font —sections = (l4mks)

(ii) Double underlining (mk)

(iii) Underlining (lmk)
(iv) Correct shapes (6mks)
(v) Correct shape filling (lmk)
(vi) Correct spelling (3mks)
(vii) General balancing (3mks)

(b) Fit 8 copies of the design on a single page (l6mks)
2 mks for every exact copy of the design 2 x 8 =

(c) Print 2 copies of your publication. One in landscape page orientation, the other in portrait page orientation
2 marks for each correct printout in both page orientations 2 x 1= (4mks)

ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/1 / Paper 1

MARKING SCHEME

1.
(i) Vacuum tubes / Ihermionic valves
(ii) Transistors
(iii) Integrated circuits
(iv) Large scale integrated and very large scale integrated circuit ½ × 4 mks

2.
a) Instructions are executed in sequence from the beginning to the end
b) A group of instructions are choosen for execution after a specified condition that returns true or false is satisfied.
c) Allows s a group of instructions to be executed repetively until a certain condition is satisfied
3 rnks

3. Cold booting refers to starting a computer from the main switch when it is initially off while
warm booting is restarting a computer when it is initially on without shutting it down

2 mks

4.
a) The act of using a word processor to creste, edit, format and print documents 1 mk
b) i) A feature that enables text to automatically flow to the next line when the cursor reaches the end of the current line
1 mk
ii) An already set format for quickly creating most frequently used documents 1 mk

5. a) Changing data being transmitted to a code only the sender and the recover can understand to prevent it from being tapped,listened to or copied by un authorized persons 1 mk
b) Tapping into communication channels to get information 1 mk

6.

16	842	10 ⟶	A	award marks as follows
16	52	4		- Division 1 mk
16	3	3		- Correct answer 1 mk

$\Rightarrow 34\ A_{16}$

7. (i) Alphabet keys 1 mk
   (ii) Function keys 1 mk
8. (a) a language in which instructions are represented using binary codes easily recognized and interpreted by a computer
   (b) A problem oriented language in which instructions are presented using human understandable languages such as English
   1 mk
9. (i) This is loss of signal strength that takes place during data transmission
   (ii) The process of combining several data signals and sending them over the same transmission medium. 1 mk
10. If the warrant on offer was return to base
   - The price of a computer with a 1 year warrants could he higher than that of a six months warranty.
   - If computer parts were not comprehensively covered (any two - 2 mks)
11. (a) SUM IF (A1:A5,">60:)
   - Correct function (1 mk)
   - Correct values in brackets (1 mk)
   (b) (i) A process of rearranging scattered files and folders on a disk to speed up their Access. (1 ½ mks)
   (ii) Refer to dividing a large physical disk into two or more logical drive (1 ½ mks)
12. (a) Universal serial port (USB) port
   (b) Provides high speed and quality data transmission
   - Supports a wide range of devices (2 mks)
13 (a) a process of sending and receiving data between two or more networked computers or Communication devices. (1 mk)
   (b) - $48_{10} \rightarrow 110000_{2}$ ——— $\frac{1}{2}$ mk Not affected by electromagnetic interference
   - $12 \rightarrow 1100_{2}$ ——— — $\frac{1}{2}$ mk Supports high band width
   - $001100 - Increase\ \ no\ of\ bits$ Has light weight and occupies less space
   - $110011 - Turn\ \ to\ 1's\ complement$ Transmits data at high speed
   $+110100 - Turn\ \ to\ 2^{15}\ \ complement$
   (3 mks)
14. $\Rightarrow 110000$

$$\underline{110100\ +} \rightarrow \frac{1}{2} mk$$

1100100_{2}

Overflow

15 (a) Information gathering

(b) (i) Sincere responses are possible due to the confidentiality of the process

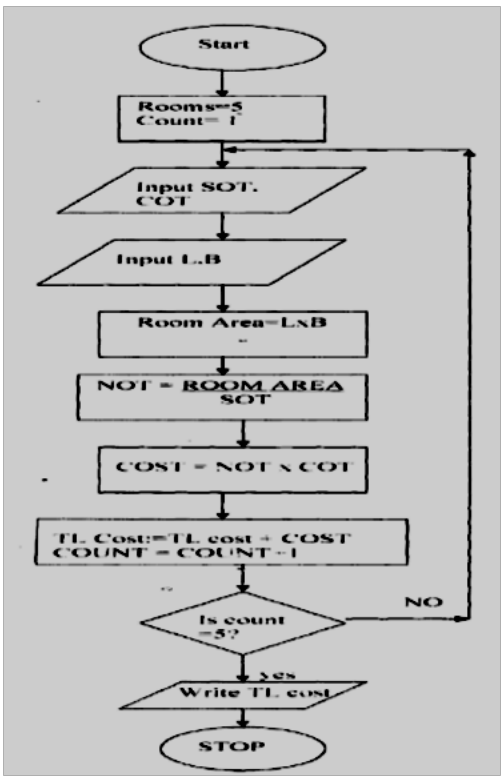
- Respondents can fill questionnaires at their awn pace
- Enables extensive equiry to be carried out (1 mk)

(ii) - Some respondents may not fill or return the questionnaires
- Good questionares are difficult to prepare
- Erroneous responses are likely if the question is not understood. (1 mk)

16 (a) (i) A data structure with contiguous memory locations holding data of the same type referenced by a single name.

(ii) This is the representation of program statements using syntax similar to a programming language called structured English.

(iii) A sequence of steps which outline a procedure of solving a given problem. (1 mk)



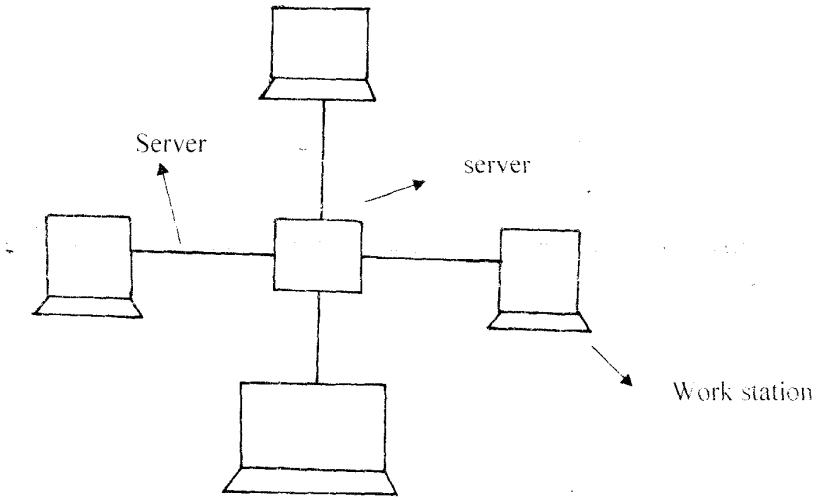
award marks as follows:

start / stop	(1 mk)
Initialization	(1 mk)
Processor	(4 mks)
Decision	(1 mk)
Input	(1 mk)
Total	(8 mks)

(c) 5, 3, 1 4/5, 1 (4 mks)

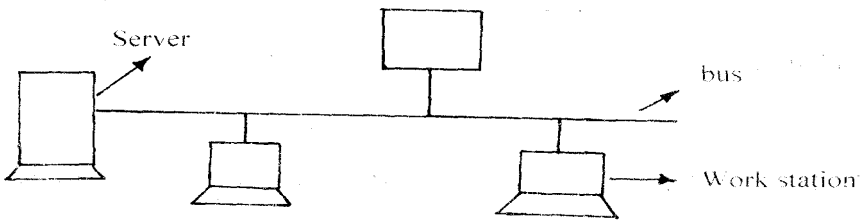
17. (a) This is a standard address used to find web pages bearing information on the internet

(b) (i) Star



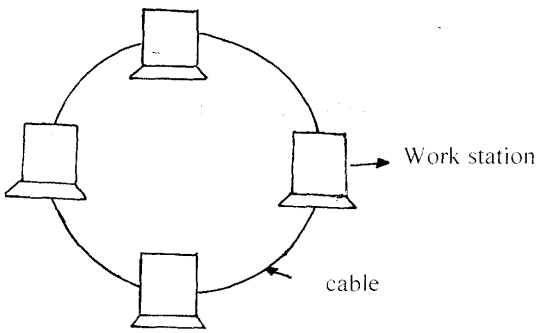
Description: This is where all computers and devices are connected via point – to – point links to a centralized computer called a server

(ii) Bus topology



Description: All computers and devices are connected together by point – to – point links in a closed loop.

(iii)



Description: A series of computers and devices are connected together by point — to — point links in a closed hoop.

Award marks as follows

- Correct diagram (1 mk)
- Labeling (1 mk)
- Description (1 mk)

(c) (i) A logical file is viewed in terms of its contents and processing activities that can be carried out on it while a physical file refers on how a file is arranged on a storage media (2 mks)

(ii) (a) This is the main file within an organization that stores permanent data against which transaction are processed (1 mk)

(b) A file that stores temporary incoming and outgoing data used to update the master file (1 mk)

(c) A duplicate master file stored assay from the computer system to reinstate the original file incase of damage (1 mk)

18. (a) (i) A field that uniquely identifies each record in database (1 mk)

(ii) A thing of interest about which data is to be stored (1 mk)

(iii) A collection of related field values representing a single entity (1 mk)

(b) ASCII ⟶ uses 7 bits to represent a character. 3 bits for the zone and 4 bits for data

BCD ⟶ uses 4 bits to represent a character

EBCD ⟶ uses 6 bits to represent a character. 2 hits for the zone and 4 bits for data

EBCDIC ⟶ uses 8 bits to represent a character. 4 bits for data and 4 bits for the zone.

Award marks for any three 1 mk for stating and link for explanation

(c) - Hacking where a person breaks codes and passwords to gain access to data and information without permission control: use of biotric features. audit trail
- Tapping: Using an intelligent program to avail information from the host computer or a network during transmission control: encrypting data
- Piracy making illegal copies of copyrighted software information or data

Control: Enactment of laws. Lowering software prices

- Link for description
- link for control measure
- Award marks for crimes such as fraud, sabotage. tresspass

19. (a) This where a person gets psychologically immersed in an artificial environment generated by a computer system

1 mk

(b) (i) Channels images and sound from the source to the eyes and ears of the

wearer
hence producing a 3D effect in the virtual world (2 mks)

(ii) Made of conductor wires that sense body movement and relay data into the vitual reality System
(2 mks)

(c) (i) making computers perform tasks that would otherwise require intelligence if
performance by human beings (1 mk)

(ii) Knowledge base — stores knowledge inform of rules and facts concerning a certain subject of interest.
Inference engine – Software which controls how knowledge is searched and accessed from the knowledge base.
User interface – A feature that enables the user to interact with the system. (3 mks)

(d)
- Eye pattern
- Finger prints
- Voice

} (3 mks)

20. (a) A network of computer based processing procedures integrated with manual processes to produce information that can support decision making. (1 mk)

(b)
- When the interviewers are geographically dispersed in different places
- When too much information is required about a small area of interest.

(c) (i) A room in which computers and computer equipment are kept and used for learning and other purposes.

(ii)
- Use of buglar proof doors
- A well set up and serviced electrical system
- Avoiding liquids in the lab
- carefully handling of computing equipment. (2 mks)

(d) (i)
- Cost
- Job opportunities
- Duration of study
- Desired level of qualification. (3 mks)

21. (a)
- Write in house application programs
- Customize commercial package to meet the needs of the organization
- Test debug, install and maintain programs. (2 mks)

(b)
- Reviewing current systems with view of identifying faults that can necessitate development of systems.
- Work with programmers to ensure a smooth coding process. (1 ×2mks)
- Facilitate training for users of the new system.

(c)
- Develops and tests websites
- Maintains updates and modifies information on the web sites. (1 ×2 mks)

ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/2 / Paper 2

MARKING SCHEME

QN	SECTION	ACTIVITY	MAX MARK	MARKS AWARDED
1	a	Creating folder "**Harper**" ½mk Correct filename "**MOCKING_BIRD**" ½mk	8mks	
		Fully typed text - The two headings @ ½mk - 5 paragraphs @ ½mk		
		Drawing using auto shapes - Each correct autoshape type@½ mk x 3shapes - Shadow effect on flowchart document symbol - ½mk - Text inside autoshape @½mk - Word art accompanying diagram - 1mk		
	b	Creating a copy and renaming it to "MOCKING_BIRD 2"	1mk	
	c	(i) Drop cap - Inserting - 1mk - Dropping by two lines – 1mk	2mks	
		(ii) Bulleting - 3 bullets @1mk	3mks	
		(iii) Converting the first paragraph three columns @1mk	3mks	
		(iv) FORMATTING the heading "TO KILL A MOCKINBIRD" - *Right alignment* - 1mk - *Arial black,* - 1mk - *font size 18,* - 1mk - *Underlined* - 1mk	4mks	
		(v) Proofreading – Check if the misspelled word "rasism" is changed to "racism" – 1mk	1mk	
		(vi) PAPER SIZE & MARGIN SPECIFICATIONS	3mks	
		- Correct paper size A4- 1mk - Margins (Top, Bottom, Right, Left) @½mk x 4		
		(vii) LINE SPECIFICATION - The last two paragraphs @1mk	2mks	
		(viii) HEADER - Inserting admission number and name @1mk	2mk	
		(ix) MOVING 1st paragraph below drawing - Moving & correct placement – 1mk	2mks	
		(x) HANGING INDENT		

		- To the paragraph which starts with "To Kill a Mockingbird is unusual…"	2mks	
		(xi) FIND & REPLACE - "racism" with "racial discrimination"	2mks	
		(xii) RIGHT ALIGNMENT - 1st paragraph which starts with "To Kill a Mockingbird is unusual…" aligned to right - ½mk	1mk	
	e	PAGINATION - Inserting with correct format **"page x of y" -** 1mk - Inserting page without format - 1mk	2mks	
	f	PAGE BORDER – WHOLE DOCUMENT - Double line border style -1mk, incorrect style award - ½mk - Blue border color –1mk - Border width 2¼pt – 1mk	3mks	
	g	CREATING TABLE (i) Creation of table with data provided	3mks	
		(ii) TABLE TITLE – Inserted in the first row and centered @1mk	2mks	
		(iii) TABLE border (Any style or width) – 1mk	1mk	
		(iv) Calculate the average cost of books automatic ally using a formula/function	2mks	
	h	PRINTING - MOCKING_BIRD 1mk - MOCKING_BIRD 2 1mk	2mks	
TOTAL			**50mks**	

	SECTION	ACTIVITY	MAX MARK		MARKS AWARDED
Q 2	(a)	Creating database named PROJECT	1mk	1	
	(b)	**STUDENTS TABLE** Creating and naming the table Creating and naming fields Correct field data types	 1mk 1mk 1mk	3	
		SUPERVISORS TABLE Creating and naming the table (SUPERVISORS TABLE) Creating and naming fields Correct field data types	 1mk 1mk 1mk	3	
		SUPERVISION TABLE Creating and naming the table (SUPERVISION TABLE) Creating and naming fields Correct field data types	 1mk 1mk 1mk	3	

	(c)	**Primary keys** STUDENTS TABLE SUPERVISORS TABLE SUPERVISION TABLE	 1mk 1mk 1mk	3	
	(d)	Two relationships(correct fields)	2mks	2	
	(e)	**Entering data in the three tables** STUDENTS TABLE SUPERVISORS TABLE SUPERVISION TABLE	3mks 3mks 3mks	9	
	(f)	Creating forms (Forms with all fields) STUDENTS SUPERVISORS SUPERVISION	 1mk 1mk 1mk	3	
	(g)	Creating query name Balance Display students details (Name, gender, fee balance) Computation balances for each student	1mk 1mks 2mks	4	
	(h)	Creating query name Balance2 Display students details - Name, project title and fee balance above 20 000	1mk 3mks	4	
	(i)	Creating a chart Title Axes bars	 1mk 1mk 1mk	3	
	(j)	Creating a report SUPERVISION Selection of fields to display students' names, project title, names of supervisors and supervision dates	1mk 4mks	5	
	(k)	Report title as "SUPERVISION PER LECTURER"	2mks	2	
	(l)	**Printing :** **Tables** : STUDENTS TABLE, SUPERVISORS TABLE, SUPERVISION TABLE **Query**: BALANCE and BALANCE2 **Report**: SUPERVISION	2mks 2mks 1mk	5	
		TOTAL	**50mks**		

FRIENDS SCHOOL KAMUSINGA KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES – PAPER 1
MAKING SCHEME

1. – Monitor ½

- System unit ½½ mark for each correct answer max (2mks)
- Key board ½
- Mouse ½

2. a) A program which is used to gain illegal access to a remote system to monitor or track the operations taking place

b) - offshelf – from vendors shelve
- In house developed / tailor made
- Downloading freeware ½ for any two correct

3. Size is continuously reducing though not affecting the processing power (1mk)

4. a) impact – printing mechanism / head gets into physical contact with printing paper

Non impact – printing mechanism / head doesn't get into contact with paper (1mk)

b) MICR – Magnetic Ink Character Reader – scans characters printer in magnetic ink.
OMR – Optical Mark Reader – recognition – scans source documents prepared using optical marks

5. a) Webpage – a page in a website (1mk)

b) Blog – a webpage which enables one to post or submit his or her personal details to a website; so that the details can be accessed from the website. (1mk)

c) Hyperlinks – text or graphic which opens another webpage or website when clicked (1mk)

d) Webportal – a website that function as a point of access to information on the World Wide Web.

6. – Data creation
- Transmission
- Data preparation (transcription)
- Media conversion
- Input validation ½ a mark for each correct answer max (2mks) order to be maintained

7. Trouble shoots hardware or S/W faults in a computer and fixes the faults.

8. a) DTP – has several design templates for various publications
- Is more powerful in manipulating graphics / texts
- Enables formatting & manipulation of individual text & frames separately
- Enables complex document format printing (½ mark for every correct point)

b) i) Kerning – fixing visual denseness of pairs of character in text
-Tracking – spacing between characters in text
-Margins – Space around the text in the four edges of a document.
-Column guides – non printable guides for columns layout

9 . Defragmentation – rearranging parts of files to consolidate scattered files on the surface of a disk into contiguous sector (1mk)

Partitioning – dividing a physical disk into several logical drives (1mk)

10. Headache – adjust screen brightness accordingly

Back & neck pain – Monitor should have a swivel base
-Use seats with backrest for upright posture
-Seats height be equal to screen height
(any correct two points max 1mark)

11. Syntax – set of rules for a certain programming language (1mk)

Semantics – vocabulary used in a language (1mk)

12. a) – System flowchart
- Entity relationship model
- Data flow diagram any correct two 1mk each 2mks max

b) - To enable correction of mistakes from previous phases
- provides reference for the next stage of development
-serves as a reference for future modification
(1mark for each correct max 2marks)

13. Rooter – subdivides a large LAN into several segments to reduce overwhelming the network
-Determines the most appropriate path for signal to the recipient
-Gateway – connects a LAN to a wide area network e.g. the internet

14. Baseband signal
-Digital signal transmitted through a digital channel without modulation (1mk)
-Broadband – a group of analog signals transmitted through a common channel but with varying signal frequency (1mk)

15. Simulation – process of creating a model of a real object, concept inorder to experiment the behavior of a real object.

SECTION B

16) a) Start ½ mark
½ mark - Display "enter salesman name, sales, terms of sale"
½ mark - Enter salesman name, sales, terms of sale
If (sales > = 20,000) then
Sales commission = 0.1 x sales
2 marks Else
Sales commission = 0.04 x sales
End if
If (terms of sale = "cash") then
Cash commission = 0.05 x sales
2 marks Else
Cash commission = 0
End if
-Total amount = sales + sales commission + cash commission ½ mark
-Display salesman name, sales, sales commission, cash commission, total amount ½ mark
Stop - ½ mark

17. a) 747_8 X_2
$1,1110,0111_2 \longrightarrow 1147_{10}$
$\longrightarrow 1E7_{16}$

b) $6_{10} \longrightarrow 110_2$
Ones compliment of $110_2 \longrightarrow 001_2$

c) – Not prone to errors
- Simple system to use 2mks max

d) Loss of signal strength along a transmission channel after a signal propagates a long distance.

e) Single mode – type of a fibre optic cable in which only one signal can be

propagated
through the channel at a time (2mks)
Multi – mode – a type of fibre optic cable in which several signals can be transmitted
through the channel at a time (2mks)

f) Convert 7.12510 to binary 7_{10} X_2

2	7
2	3 rem 1
2	1 rem 1
	0 rem 1 = 111

0.125_{10} X_2

0.125 x 2 = → 0.25 carry 0
0.125 x 2 = 0.5 carry 0
0.5 x 2 = 1.0 carry 1
= 0.001
∴ 7.125 → 111.001_2

18. a) i) – labels
- Values
- Formulae
- Functions
½ mark for each – max 2mks

ii) - Performs automatic recalculation
-Can be formatted for good appearance.
-Produces neat work
-Inbuilt functions to auto mate arithmetic operations

iii) Set of step by step instructions on how to generate a graphical .chart from selected data in a worksheet

iv) a) change – replace a word with a spelling error with the given suggestion
b) Ignore once – leave a word with a spelling error without making any change
c) Add – used to add a new vocabulary in a list of suggestions

v) A document with predefines formats and styles from which another document can be created

19. i) –E learning
- Simulation to demonstrate scientific concepts
- Research on the internet
- Computer aided learning (CAL) and computer aided teaching (CAT) (1mk for max of 3mks)

ii) a) Pressure pads (1mk)
b) – Cheaper than modifying the real object / system
-Enables a detailed insight to a problem
- Less dangerous (2mks x 3)

iii) Software engineer – designs the logic of various programs for performing various tasks (1mk)
Computer engineer – designs new hardware devices e.g. processor (1mk)

iv) – Modifying the website
-Updating the website
-Troubleshooting and adding information to a website (1mk x 3)

20. i) – Database management system (DBMS)
- User programs
- Database (1mk x 3)

ii) a) Attributes – facts about an entity whose data is stored in a database (1mk)
b) Database model – A description of how data is stored in data items in a file / table and how it canbe linked to other files (1mk)
c) Macro – A database object used to automate execution of some tasks in database (1mk)
iii) – Relational – data is stored in form of records in tables / relations which can be linked to other tables.
- Hierrachical – data items are related to each other in a tree like structure
- Network model – these are many / multiple links between various data items in various files, hence forming network of links. (1mk x 3)
iv) - To avoid unnecessary data duplication
- To make updating of data easier
- To avoid data inconsistency

FRIENDS SCHOOL KAMUSINGA KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/2 / PAPER 2
MARKING SCHEME

Question 1 WORD PROCESSOR		MKS
a)	Document typing	
	Typing all text	8
	In margin Drop cap (4 lines)	2
	Dropped Drop cap (3 lines)	2
	Bullets	3
	Proofreading	2
	All subtitles Bold	2
	Spacing paragraphs	2
	Saving as Networking _1	1
b)	Saving changes	1
	Copying & pasting	2
	Saving as Networking _2	1
	Justified	1
c)	Centering	2
	Bordering	2
	Shading	2
d)	Double line spacing whole document	2
e)	Double indent	3
	Double indent by 1.5”	3
f)	Left margin	1

Question 2 DATABASE		MKS
a)	Creating database	1
b)	Creating Table	
	Fields	1
	Data types	1
	Field size/format	1
c)	ADM Number as primary key	2
d)	Saving as students Table	2
e)	Entering records in the table	3
f)	Record insertion	2
g)	Deleting record	2
h)	Sorting – ascending order	2
i)	Moving fields	4
j)	Surname field size 20	1
k)	Form creation	2
	Naming form as students	1

					entries	
	Right margin	1			Inserting unbound control	1
	Top margin	1			Correct function	3
	Bottom margin	1				
				l)	Inserting picture in the form	3
g)	Header	2				
	Footer	2		m)	Report creation	3
h)	Saving changes	1		n)	Inserting picture in report header	2
i)	Printing			o)	Query _1	4
	Networking _1	1			Query _2	3
	Networking _2	1			Query _3	3
				p)	Printing each 0.5 marks	3
	Total marks	**50**			**Total marks**	**50**

MOI GIRLS HIGH SCHOOL - NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES PAPER ONE

MARKING SCHEME

1. A core 2 duo processor contains two processors contains two processors or cores in a single silicon chip, Quad core has four processors on a single chip.
2. (a) Images displayed in gasplasma do not suffer from angle distortion
   (b) (a) low power requirement
   (b) High efficiency
   (c) long life
3. (a) Means that the license to the software is freely made available to any interested user at no fee.
   (b) Ubuntu, Fedora, Susse and Red hat
4. Compatibility, refers to ability to use software without modification
   Interoperability, refers to ability of software to work across other platform,
5. (a) System registry is windows database that keeps details about programs installed in a computer
   (b) Corrupted operating system
   Hard disk failure
   Infection by malware such as worms
6. Pressing Ctrl + Alt + Del keys during booting
7. When saving a document
   For the first time
   In a new location
   Different file format
   With a new name
8. Print out of paper
   Paper jam
   Printer not on
   Publication overflows the margin
9. Science and technology act cap 250 of 1997
   Kenya broadcasting corporation act of 1988

Kenya communication act of 1998

10. 1110101_2
$\underline{101.010_2}$
1001.011_2
(b) $EFE_{16} = 3838_{10}$

11. Control data access both physically and electronically
Provide users with easy to use data input mechanisms
Use data detection and correction measures
Use antivirus software to protect data from being corrupted

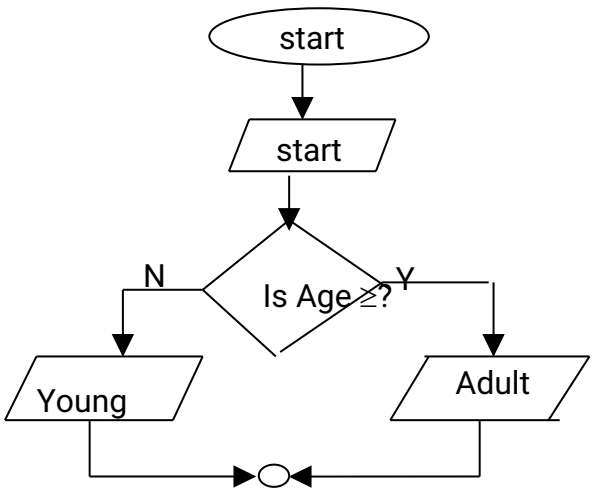
12. (a) It is the actual delivery and installation of the system the system for use in the day to day operating system environment for the users to start using it.
(b) File conversion, staff training, and changeover

13. Router interconnects different networks and directs different data packets
Gateway provides access to wide area network or internet

14. (a) Teletext, news and information is provided on TV screen to subscribers
(b) Video text provides two way communication and used in reservation systems

15. Computer technician
Computer engineer
Computer programmer

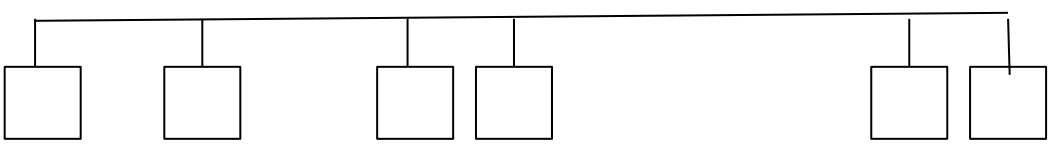
16. a



(b) Looping –condition is tested at end of loop
Selection-condition is tested at beginng

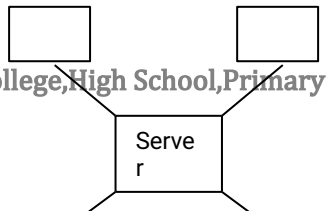
© (i) Documentation
(ii) Testing
(iii) design
(iv) Implementation

17. (a) Bus



correct drawing & explanation = (2mks)

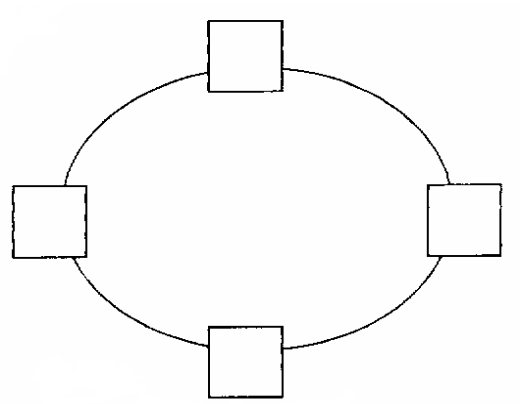
(ii) Star



Nodes

Correct drawing and explanation (2mks)

(iii) **Ring**



(2mks)

(2mks) correct drawing and explanation

(b) (i) **Print server** – allows user of the network to share the purses, maintains a print queue and ensures that print outs from different users do not get mixed up.

(2mks) for correct explanation.

(ii) **Internet sever** – Will connect to the internet through an ISP. Will deal with request for information from the www.

(iii) **Intranet sever**. Will hold web pages that can be accessed by the users:

Local iformation that the teacher wish to available to students will be placed there. *(2mks) for correct explanation*

© An editor or word processor is used to prepare the message. The email address of the receiver is added and the message is sent.

Detailed explanation on e-mail writing is required and can earn a student full marks

18. (a) (i) fire in the computers – Take regular backups and store them away from the computer.

(ii) Hacker – Use / employ passwords to access the system. (2mks)

(ii) Virus attack – Virus checker (antivirus) should be installed and update regularly

(iv) Disgrantled ex employees – passwords locking the computer room (2mks)

(2mks) for correct explanation

(b) **Private data** / information that belongs to an individual and is not accessed by or disclose to a person unless with direct permission from the owner. (2mks)

Confidential data: - Data / information held by a government or organization about people can be see without necessarily informing the owner.

(c) **Sources of virus**

(i) Contact with contaminated systems
(ii) Pirated software
(iii) Free ware and shareware
(iv) Updates of software and distributed via networks.

19. (a) (i) Computer engineers – This is a person who is skilled in designing and developing computer components such as storage devices and other electronic components.
(1mk)

(ii) Software Engineers – This is a person who is skilled in software development and technical operation of a computer hardware.
(1mk)

(iii) Computer technician – These are skilled persons who maintain, upgrade and repair computers to ensure that all the devices are in good working condition
(1mk)

(b) Duties of an information system manager
- make sure that all tasks in IT department are done correctly and on time
- Preparing budgets for the departments
- Keeping the department inventory records up-to-date
- Managing the human resource within the department ***(Any 3 x 1)3mks***

(c) (i) Universities – Kenyatta, Nairobi, JKUAT, Egerton Universities
(ii) Polytechnics – Kenya, Mombasa, Eldoret, Kisumu poly
(iii) College – Institutes e.g. Rift valley and private colleges etc ***(1x3)***

b) Formatting features
-Changing fonts (type, style, and size)
-Changing text colour
- Underlining
-Bolding
-Italising ***($^{1}/_{2}$ x 4) (2mks)***

e) Defn. of **electronic spreadsheet**
- A electronic spreadsheet is application software consisting of series of rows and columns that form cells and are used for the manipulation of numeric data. ***(1mk)***

(f) (i) Range
- A range is a rectangular arrangement of cells specified by the address of its top left bottom right cells, separated by a colon (:) e.g. (Al: B8)
(1mk)

(ii) "What if" **analysis**
- This involves changing the value of one of the arguments in a formula to see the difference the change would make on the results of the calculation

(iii) Automatic recalculation
- This is the feature in electronic spreadsheet which automatically adjusts the result of a formula if the values in worksheet are changed. ***(1mk)***

20. (i) 24; $35_{10} = x_2$

2		24	R
2	12	0	

0.35 x 2 = 0.70
0.70 x 2= 1.40
copy down wards = 01011_2

2	6	0 √	0.40 x 2 = 0.88
2	3	1	0.80 x 2 = 1.60
2	1	1	0.60 x 2 = 1.20
	0		0.20 x 2 = 0.40 √ Repetition of the previous to ignored

$= 1100_2$ √ 0.40 x 2 = 0.80
0.80 x2 = 1.60
0.08 x 2 = 1.60

$= 1100.01011_{2\sqrt{}}1$

(ii) 6 AB_H = x10

6	A	B
$(6 \times 16^2$	10×16^1	11×16^0

6 x 256 + 10 x 16 + 11 x 1
1536 + 160 + 11
= 1707_{10} (1mk) – Award 0 if no radix 5. } √ 1mk

(iii) 20

2			20	R
2	10	0		
2	5	0		
2	2	1		
2	1	0		
	0	1		

00010100_2 √ 1

2			25	R
2	12	1		
2	6	0		
2	3	1		
2	1	1		
	0	1		

$= 00011101_2$ √

One's compliment of -25 = 11100010 √ 1
Two's compliment of – 25 1 + √ 1
11100011√ 1

00010100
11100011 +
11110111
$= 11110111_2$ √ 1

MOI GIRLS HIGH SCHOOL - NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES 451/2

MARKING SCHEME

1. a) Existence of filename called LIST.DOC in floppy = 2 mks
   - Creation of table and data existence (No borders) = 2 mks
   - Underline of the header labels = 2 m ks
   - All correct entries = 10 mks
   - Correct usage of fonts and size (times New Roman, Size 12) 4 mks

   b) Existence of filename LETTER.DOC in floppy 2 mks
   - Correct insertion using third row entries = 4 mks
   - Justification of the 1st paragraph = 5 mks
   - Correct typing of whole document = 10 mks
   - Formatting as per specimen given = 5 mk

c) Hardcopy printouts of LIST.DOC and LETTER.DUC 4 mks

2. a) i) Creation of the worksheet and existence if MARKS1 = 2 mks
- All entries correctly entered 4 mks
- Validation of cells to display "Please enter number between 0 and 100" = 2 mks
- Formatting of worksheet as per specimen = 3 mks

b) Existence of MARKS2 =2 mks

Correct formula for each of the following:
- Total for each student (SUM) = 2 mks
- Mean Score for each student (AVERAGE) =2 mks
- Highest score per subject (MAX) =2 mks
- Rank for each student (RANK) =2 mks
- Grade computations for each student = 12 mks

3. a) Existence of the database JUADAT1 = 2 mks
- Correct entries of the fields as per specimen and properties = 9 mks
- Existence of the table JKALI = 2 mks
- Creation of a primary key on Membership No. = 2 mks

b) Correct records entered as per sample given = 10 mks

c) Existence of table called JKALI2 2 mks
Sorting in Ascending Order of Activity & name — 2 mks

d) - Existence of the report called JUAREPORT 2 mks
- Existence if required fields within the report 6 mks
- Summary of all fees paid correctly computed 5 mks
- Title of report "JUAL KALI REGISTRATION" 2 mks

e) - Existence of the query called JUAQUERY = 2 mks
- Correct criteria set on Activity field as "Blacksmith" = 4 mks

KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

451/1 /PAPER 1

MARKING SCHEME

1. (a) What is an embedded computer?
- It is a special purpose computer used inside a device
-It is a dedicated computer that is attached to a machine to perform a specific task. (1x1)

(b) The main component that formed the basis for second generation computers.
Transistor (lx1)

2. (a) One function of a main frame operating system which you would not expect to find in the operating system of a micro-computer.
- It is a multi user operating system
- it is multi access operating system - it allows a number of users to interact with the computer at the same time. Lx1

(b) 4 examples of application software.
- Word processor
- Spread sheet
- Data bases
- Auto CAD
- Ms -word
- Ms -Excel
- Ms —Access (Any4 ; ½ x 4 = 2mks)

3. 4 fields which would be expected in a database file of information about school students.
   - Name
   - Admn. No.
   - Class
   - House/dormitory,
   - Stream
   - Gender/sex (any 4; ½ x 4 = 2mks)

4. (a) 4 examples of document readers.
   - Optical Character recognition (OCR)
   - Optical Bar recognition (OBR)
   - Optical Mark recognition (OMR)
   - Magnetic Ink Character recognition (MICR)

   Magnetic Strip Reader or card reader (½ x 4 = 2mks)

   (b) One application for each of the input methods in (4.(a). (2mks)
   (i)-Reads text and images or objects
   (ii)-Read Bar codes on items
   (iii)-To mark questionnaires and multiple choice questions
   (iv)-To read and process cheque
   (v)-To read ATM cards (½ x 4 = 2mks)

5. Subtract 01011_2 from 11001_2 (2mks)
   Using ordinary method
   11001_2
   -01011_2
   $2\ 01110_2$ (1x2)
   Using two's complement
   Flip ____ 01011_2 to
   10100
   Add l + 1
   10101
   Add 11001_2 to 10101_2
   Therefore 11001_2
   10101
   (1) 01110
   Discard $=01110_2$
   Any method that gives the correct answer

6. Explain the following computer crimes, (2mks)
   (i). Fraud -use of computer to conceal information or cheating other people with the aim of getting money. (1x1=1mk)
   (ii). Alteration.-changing the data or information without permission with an aim of miss informing others (1x1=1mk)

7. (a) Define:
   (i). Firewalls (lmk)
   - It is a program or hardware or a combination of both that filters the information coming through the internet into a computer.

   Or

   - It is a program that filters the information coming through the internet into a computer (Any lx1)

   (ii). Data encryption. (lmk)

- It is the encoding of data during storage or transmission so that it cannot be understood by those who do not have encryption key.
- The word scrambling can be used in place of encoding or
- Software or device that filters data between different networks by enforcing the host network access control policy.

8. Identify three advantages of using modular programming in system development. (3 marks)

- To enable program be developed in stages — hence the programmer can concentrate on one task at a time
- It allows a large program to be written by several people hence saves time (any 3x1=3mks)
- A single module can be used by different programs rather than creating same module in different programs.
- Modules can be tested individually hence easier to debug as they are short errors can be traced easily
- Program modification is easier since changes can be isolated within specific modules.

9. Explain the following terms as used in computing cycle. (3 marks)

(i) Fetch phase- The stage in which the instruction is read from the memory or an input device via data bus into the instruction register

(ii) Decode phase- Stage in which the processor determines the kind of operation it is required to perform.

(iii) Execution phase- In this stage the control unit issues appropriate sequence of signals depending on the decoded information

l0. (a) Differentiate between Cache and Buffer memories. (2mks)

Buffer — control the speed difference between communicating device or Control the speed imbalance between two devices

Cache — it boost CPU processing speed because the CPU can access it much more quickly than RAM

(b) List and give the functions of computer buses. (3mks)

- data bus
- control bus
- -address bus
- Functions
- data bus — carries data to and from the CPU
- Pathway where the actual data transfer takes place
- Address bus — used to locate the storage position in memory where the next instruction or data to be processed is held.
- Control bus — it is the pathway for all timing and controlling functions sent by the control unit to other parts of the system.

ll. (a) Explain any two factors that should be considered during output design (2marks)

- The target audience or type of recipients
- the frequency of report generation
- Quality and format required

(b) Why is observation sometimes disadvantageous when used in fact finding? (1 mark)

- Like likelihood of change of work performance in the people under study
- Faced by time limitation

- Limited by distance
- Standards or quality may change due to break down of machines and one may get wrong information.

12. Outline two major functions of UPS in computer laboratory. (2 marks)
(i) It regulates power voltages by eliminating surges and brownouts
(ii) It temporarily provides power to the computer incase of a sudden power failure so the user can save his
work and shut down the computer

13. (a) State the use of:
(i) Light pen (lmk)
- It is used to make selections in CAD
- It is also used to draw objects from shapes that appear as icons on screen

(ii) Graphics tablet. (lmk)
- They are used to trace or draw highly detailed engineering and architectural drawings and designs.

(b) Name any advantage of solid-state memories over other storage media. (1 mark)
- Does not require a drive to read or write to them
- light and

14. Outline four data types that can be entered into a spreadsheet. (2 marks)
- Value- numeric and date data types
- labels — alphanumeric or text
- Formulars — user define mathematic expression
- Functions — in built mathematic arguments that compost of text, operators and ranges.

15. (a) Define virtual reality. (1 mark)
- It is the use of computer to visualize, manipulate and interact with complex data. ORX-refers to a condition in which a person becomes psychologically immersed in an artificial environment using computers

(b) List any two applications of virtual reality. (1 mark)
- Video mapping
- Immensive systems
- Telepresence

16. (a) List two examples of;
(i) Third generation languages.
-Pascal -BASIC
- FORTRAN - COBOL

(ii) Object oriented languages.
- simula -Java
- small Talk -C^{++}

(b) Define
(i) Object code
-it is a machine code produced by a computer
-it is an output of a translator
-it is a translated source code
- translated program code

(ii) Source code
-this is a program written in the specific programming language
- un translated program code
- program in human understandable

(c) Differentiate between a compiler and an interpreter.

Compiler	Interpreter
-Fast in translation	Relatively slow translate line by line
-Translate whole program at once	translate line by line Take less memory
-Take up large memory space	Take less memory Every time program is run hence
-saves time because Exe file is saved	Every time program is run hence consume time

(d) START
PRINT ENTER CAR NUMBER
PRINT ENTER NUMBER OF DAYS
IFNUMBEROFDAYS>=7THEN
(NUMBER OF DAYS X 2500) - (NUMBER OF DAYS X2500) 25%
ELSE
NUMBER OF DAYS X 2500
END IF
END

17. (a) State any three duties of the following ICT personnels.

(i) Systems analyst.

- Hold discussions with manager and users of the system to determine their exact needs
- Gather facts about the system in question
- Make recommendations for the procurement of hardware and software if necessary
- Test and debug the new system
- Assist in training employees to use the new system
- Evaluate the performance of the system
- Design new system (any 3 x1=3mks)

(ii) Database administrator. (3 marks)

- Ensure the data base performance is optimum
- Develop policies and procedure to ensure the security and integrity of the system
- Co-ordinates data collection and storage
- Meet with users to make modifications to the database
- Co-Ordinate the database design
- Select database system for the company
- Maintains the database system (any 1x3=3mks)

(iii) Web master (3 marks)

- Ensure the site contains the required information
- Ensure that all the links on the site work and site is easy to navigate(any 3x1=3mks)
- Develop a web page
- Post new content to the website / update the web site content

(b) Name any three ICT courses offered in the Kenyan universities. (3 marks)

- Computer science
- Information technology IT
- Computer engineering

- Software engineering (any 1x3=3mks)

(c) Outline three advantages of telecommuting. (3 marks)

- Cuts traveling cost
- It saves time because no traveling involved
- Productivity increases
- Less distraction from co-workers
- No need to hire large office hence low rent (any 1x3=3mks)

18. (a) Define artificial Intelligence. (1 mark)

- Refers to the ability of a computer to mimic capabilities
- It is the branch of computer science that is concerned with the development of machines that emulate human — like qualities such as leaning, reasoning, communicating
- The science of attempting to develop machine that mimic human behaviours

(b) Explain the application of artificial intelligence in the following areas. (6 marks)

(i) Natural language processing - have been used to produce voice recognition and synthesis system

(ii) Robotics - All have been used to control robot
- AT have been used to construct robots
- Computers are used to control machines in the place of man. E.g. welding, spraying, loading

(iii) Expert systems - At have been used to produce
- Expert systems that can be used in research, medical diagnosis etc

(b) Give any three symptoms of the following computer work-related disorders and two of their methods of prevention.

(i) Computer vision syndrome. (4 marks)

Symptoms
- Sore, tired, burning and itching or dry eyes
- Blurred or double vision
- Headache or sore neck
- increased sensitivity to light

<u>Prevention</u>
- Take a break of 5 to 10 minutes
- Reduce glare and reflection from the computer screen
- Adjust the contrast and brightness of the screen
- Prevent eye strain by adjusting the sitting height
- Gentle massage your eyes

(ii) Repetitive strain injury. (4 marks)

Symptoms
- Numbness in the thumb or in fingers
- Extreme pain at the wrist
- Tingling in the finger

Prevention
- Take frequent breaks
- Position as the keyboard

19. (a) Define the term ergonomics (1 mark)

-it is a science that determines the best working condition for humans who work with machines

(b)(i) Give any three advantages of using a fibre optic cable in data transmission (3 mks)

- Cannot be affected by electromagnetic interference
- Offers fast transmission rates than other media
- Supports high bandwidth or can transmit large volume of data at once
- Less prone to transmission impairments or has low attention

- Eaves dropping is difficult to be done
- Takes limited or less space

(ii) Name two types of fibre optic. (1 mark)
- Single mode
- Multi mode

(c) State three advantages of wireless communication. (3 marks)
- Flexible in operation — one move around without losing access to the network
- Covers a large geographical area easily
- Covers remote areas where physical infrastructure like cables is expensive

(d) Explain the following terms. (3 marks)
(i) Multiplexing - it is the process of sending multiple data signals over the same medium lx1
(Give mark if diagram exist)
(ii) Bandwidth - it is the maximum amount of data that a transmission medium can carry at any one time (1x1)
(iii) Base band signal- it is a digital signal that is generated and applied to the transmissio medium directly without modulation.

(e) Explain the use of these communication devices. (4 marks)
(i) Routers- It interconnect different network. It directs data efficiently towards its intended destination across a network
(ii) Hub - is a component or device in a network that transmit signals by broadcasting the all the computers on the network. The computer whose address is on the message picks the message from the network that is part of the broadcast domain.

20. (a) Define Internet. (1mark)
- It is a network of networks that connects computers worldwide via a huge set of telecommunication links.

(b) Describe the transmission of data over a telephone line (4 marks) (diagram)

(c) Outline the 'line of sight' principle in wireless transmission. (2marks)
- It is the signal pathway between two receiver stations. There must be no obstacle between the two stations or along the line of sight for this will block the signal.

(d) The first column in the table below contains the formulae stored in cell F10 of a spreadsheet. Enter the formula as they would appear when copied to cell M20 of the same spreadsheet. (3marks)

Formula in F10	Formula in M20
= D10*E10	= K20*L20
=A$25	= 1& 25
= 4*D$13	= 4*K&13

(e) (i) Differentiate between multiprogramming and multiprocessing. (2marks)
- Multiprogramming: The ability of the computer to run more than one program apparently at the same time.
- Multiprocessing: Ability of the computer to run two processors at the same time

(ii) Give application areas of the following data processing modes. (3 marks)
(a) Batch
- Processing fairly bills e.g. electricity, water,
- Payroll processing

(b) Real time
- Manufacturing, interactive games
- Robot control systems, airline booking

(c) On line
- Airline booking/reservations
- Manufacturing
- E-learning

- E-commerce
- instant messaging

KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/2 / PAPER 2
MARKING SCHEME

1. (a) (i) Header – Company's name as letter head
√ Company's name (1mk)
√ As letter head (1mk)
(ii) Footer
√ Current date & time (1mk)
√ Left aligned (1mk)
(iii) Insurance will cover (explanation of)
√ vehicles and each client dire (1mk)
√ car number will not be the same
(iv) Address line
√ Titre (2mks)
√ First name (2mks)
√ last name (2mks)
√ Address (2mks)
√ country (2mks)
√ car no. plate (2mks)
√ Amount (2mks)
Total = 2 x 7 = 14mks)

2. (a) √ database name (personnel) (1mk)
√ Table name (department) (1mk)
√correct entry (3mks)
(b) (i) Criteria > 32000/= (4mks), saving (1mk)
(ii) Criteria < 4500/= Am compare from computer department(4mks) saving(1mk)
(iii) Criteria: Married or single (3mks), saving(1mk)
(iv) Criteria: Between 25000 and 50000 (2mks), saving (1mk)
(v) Criteria: name beginning with M or end with S (2mks), saving (1mk)
(c) (i) √ creating a new column called new salary (2mks)
√ formula New salary: [Basic PAY] $*^{50}/_{100}$ + [BASIC PAY] (4mks) saving(1mk)
(ii) Criteria: earning > 33000/= and eyed between 39 and 70 (4mks), saving (1mk)

(d) (i) Creation of a form using form wizard (3mks)
(ii) Creation of form in design view (2mks) calculating the total basic salary (2mks), adding
current date and time on the form header (½mk), a\saving (½mk)

(b) (i) Preparation of the table; ✓ merging of cell (3mks)
✓ text formatting – (2mks)
✓ correct entry (2mks

(ii) format table ✓ border line colour red (2mks)
✓ double line (3mks)

(iii) Shading; ✓ first two rows light green colour(2 ½ mks)
✓ Rest of the table light blue (2 ½ mks)

(c) ✓ saving as computer (1mk) ✓ complete typing (3mks)

(i) Formatting ✓ title as computer program (½mk)
✓ change case to upper case
✓ font style TREBUCHET MS & Size 16(½mk)
✓ Font colour (½mk)

(ii) Find and replace ✓ finding instruction (1mk)
✓ replacing instruction with its synonym (2mks)

(iii) ✓ justify paragraph (2mks)
✓ shading colour (light green) (1mk)

MARANDA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
451/1 – PAPER 1
MARKING SCHEME

1. (a) What is an embedded computer?
- It is a special purpose computer used inside a device
-It is a dedicated computer that is attached to a machine to perform a specific task. (1x1)

(b) The main component that formed the basis for second generation computers.
Transistor (lx1)

2. (a) One function of a main frame operating system which you would not expect to find in the operating system of a micro-computer.
-It is a multi user operating system
-it is multi access operating system - it allows a number of users to interact with the computer at the same time. Lx1

(b) 4 examples of application software.
- Word processor
- Spread sheet
- Data bases
- Auto CAD
- Ms -word
- Ms -Excel
- Ms —Access (Any4 ; ½ x 4 = 2mks)

3. 4 fields which would be expected in a database file of information about school students.
- Name
- Admn. No.

- Class
- House/dormitory,
- Stream
- Gender/sex (any 4; ½ x 4 = 2mks)

4. (a) 4 examples of document readers.
   - Optical Character recognition (OCR)
   - Optical Bar recognition (OBR)
   - Optical Mark recognition (OMR)
   - Magnetic Ink Character recognition (MICR)

   Magnetic Strip Reader or card reader (½ x 4 = 2mks)

   (b) One application for each of the input methods in (4.(a). (2mks)

   (i)-Reads text and images or objects
   (ii)-Read Bar codes on items
   (iii)-To mark questionnaires and multiple choice questions
   (iv)-To read and process cheque
   (v)-To read ATM cards (½ x 4 = 2mks)

5. Subtract 01011_2 from 11001_2 (2mks)

   Using ordinary method

   11001_2

   -01011_2

   $2\ 01110_2$ (1x2)

   Using two's complement

   Flip ____ 01011_2 to 10100

   Add l $+\ 1$

   10101

   Add 11001_2 to 10101_2

   Therefore 11001_2

   $/\ 10101$

   $(1)\ 01110$

   Discard $=01110_2$

   Any method that gives the correct answer

6. Explain the following computer crimes, (2mks)

   (i). Fraud -use of computer to conceal information or cheating other people with the aim of getting money. (1x1=1mk)

   (ii). Alteration.-changing the data or information without permission with an aim of miss informing others (1x1=1mk)

7. (a) Define:

   (i). Firewalls (lmk)

   - It is a program or hardware or a combination of both that filters the information coming through the internet into a computer.

   Or

   - It is a program that filters the information coming through the internet into a computer (Any lx1)

   (ii). Data encryption. (lmk)

   - It is the encoding of data during storage or transmission so that it cannot be understood by those who do not have encryption key.
   - The word scrambling can be used in place of encoding or
   - Software or device that filters data between different networks by enforcing

the host network access control policy.

8. Identify three advantages of using modular programming in system development. (3 marks)

- To enable program be developed in stages — hence the programmer can concentrate on one task at a time
- It allows a large program to be written by several people hence saves time (any 3x1=3mks)
- A single module can be used by different programs rather than creating same module in different programs.
- Modules can be tested individually hence easier to debug as they are short errors can be traced easily
- Program modification is easier since changes can be isolated within specific modules.

9. Explain the following terms as used in computing cycle. (3 marks)

(i) Fetch phase- The stage in which the instruction is read from the memory or an input device via data bus into the instruction register

(ii) Decode phase- Stage in which the processor determines the kind of operation it is required to perform.

(iii) Execution phase- In this stage the control unit issues appropriate sequence of signals depending on the decoded information

l0. (a) Differentiate between Cache and Buffer memories. (2mks)

Buffer — control the speed difference between communicating device or Control the speed imbalance between two devices

Cache — it boost CPU processing speed because the CPU can access it much more quickly than RAM

(b) List and give the functions of computer buses. (3mks)

- data bus
- control bus
- -address bus
- Functions
- data bus — carries data to and from the CPU
- Pathway where the actual data transfer takes place
- Address bus — used to locate the storage position in memory where the next instruction or data to be processed is held.
- Control bus — it is the pathway for all timing and controlling functions sent by the control unit to other parts of the system.

ll.(a) Explain any two factors that should be considered during output design (2marks)

- The target audience or type of recipients
- the frequency of report generation
- Quality and format required

(b) Why is observation sometimes disadvantageous when used in fact finding? (1 mark)

- Like likelihood of change of work performance in the people under study
- Faced by time limitation
- Limited by distance
- Standards or quality may change due to break down of machines and one may get wrong information.

12. Outline two major functions of UPS in computer laboratory. (2 marks)

(i) It regulates power voltages by eliminating surges and brownouts
(ii) It temporarily provides power to the computer incase of a sudden power failure so the user can save his work and shut down the computer

13. (a) State the use of:
(i) Light pen (lmk)
- It is used to make selections in CAD
- It is also used to draw objects from shapes that appear as icons on screen

(ii) Graphics tablet. (lmk)
- They are used to trace or draw highly detailed engineering and architectural drawings and designs.

(b) Name any advantage of solid-state memories over other storage media. (1 mark)
- Does not require a drive to read or write to them
- light and

14. Outline four data types that can be entered into a spreadsheet. (2 marks)
- Value- numeric and date data types
- labels — alphanumeric or text
- Formulars — user define mathematic expression
- Functions — in built mathematic arguments that compost of text, operators and ranges.

15. (a) Define virtual reality. (1 mark)
- It is the use of computer to visualize, manipulate and interact with complex data. ORX-refers to a condition in which a person becomes psychologically immersed in an artificial environment using computers

(b) List any two applications of virtual reality. (1 mark)
- Video mapping
- Immensive systems
- Telepresence

16. (a) List two examples of;
(i) Third generation languages.
-Pascal -BASIC
- FORTRAN - COBOL

(ii) Object oriented languages.
- simula -Java
- small Talk -C^{++}

(b) Define
(i) Object code
-it is a machine code produced by a computer
-it is an output of a translator
-it is a translated source code
- translated program code

(ii)Source code
-this is a program written in the specific programming language
- un translated program code
- program in human understandable

(c) Differentiate between a compiler and an interpreter.

Compiler	Interpreter
-Fast in translation	Relatively slow translate line by line
-Translate whole program at	translate line by line Take less

once	memory
-Take up large memory space	Take less memory Every time program is run hence
-saves time because Exe file is saved	Every time program is run hence consume time

(d) START
PRINT ENTER CAR NUMBER
PRINT ENTER NUMBER OF DAYS
IFNUMBEROFDAYS>=7THEN
(NUMBER OF DAYS X 2500) - (NUMBER OF DAYS X2500) 25%
ELSE
NUMBER OF DAYS X 2500
END IF
END

17. (a) State any three duties of the following ICT personnels.
(i) Systems analyst.
- Hold discussions with manager and users of the system to determine their exact needs
- Gather facts about the system in question
- Make recommendations for the procurement of hardware and software if necessary
- Test and debug the new system
- Assist in training employees to use the new system
- Evaluate the performance of the system
- Design new system (any 3 x1=3mks)

(ii) Database administrator. (3 marks)
- Ensure the data base performance is optimum
- Develop policies and procedure to ensure the security and integrity of the system
- Co-ordinates data collection and storage
- Meet with users to make modifications to the database
- Co-Ordinate the database design
- Select database system for the company
- Maintains the database system (any 1x3=3mks)

(iii) Web master (3 marks)
- Ensure the site contains the required information
- Ensure that all the links on the site work and site is easy to navigate(any 3x1=3mks)
- Develop a web page
- Post new content to the website / update the web site content

(b) Name any three ICT courses offered in the Kenyan universities. (3 marks)
- Computer science
- Information technology IT
- Computer engineering
- Software engineering (any 1x3=3mks)

(c) Outline three advantages of telecommuting. (3 marks)
- Cuts traveling cost
- It saves time because no traveling involved
- Productivity increases

- Less distraction from co-workers
- No need to hire large office hence low rent (any 1x3=3mks)

18. (a) Define artificial Intelligence. (1 mark)
- Refers to the ability of a computer to mimic capabilities
- It is the branch of computer science that is concerned with the development of machines that emulate human — like qualities such as leaning, reasoning, communicating
- The science of attempting to develop machine that mimic human behaviours

(b) Explain the application of artificial intelligence in the following areas. (6 marks)

(i) Natural language processing - have been used to produce voice recognition and synthesis system

(ii) Robotics - All have been used to control robot
- AT have been used to construct robots
- Computers are used to control machines in the place of man.
E.g. welding, spraying, loading

(iii) Expert systems - At have been used to produce
- Expert systems that can be used in research, medical diagnosis etc

(b) Give any three symptoms of the following computer work-related disorders and two of their methods of prevention.

(i) Computer vision syndrome. (4 marks)

Symptoms
- Sore, tired, burning and itching or dry eyes
- Blurred or double vision
- Headache or sore neck
- increased sensitivity to light

<u>Prevention</u>
- Take a break of 5 to 10 minutes
- Reduce glare and reflection from the computer screen
- Adjust the contrast and brightness of the screen
- Prevent eye strain by adjusting the sitting height
- Gentle massage your eyes

(ii) Repetitive strain injury. (4 marks)
Symptoms
- Numbness in the thumb or in fingers
- Extreme pain at the wrist

- Tingling in the finger
Prevention
- Take frequent breaks
- Position as the keyboard

19. (a) Define the term ergonomics (1 mark)
-it is a science that determines the best working condition for humans who work with machines

(b) (i) Give any three advantages of using a fibre optic cable in data transmission

(3 mks)

- Cannot be affected by electromagnetic interference
- Offers fast transmission rates than other media
- Supports high bandwidth or can transmit large volume of data at once
- Less prone to transmission impairments or has low attention
- Eaves dropping is difficult to be done
- Takes limited or less space

(ii) Name two types of fibre optic. (1 mark)

- Single mode
- Multi mode

(c) State three advantages of wireless communication. (3 marks)

- Flexible in operation — one move around without losing access to the network
- Covers a large geographical area easily
- Covers remote areas where physical infrastructure like cables is expensive

(d) Explain the following terms. (3 marks)

(i) Multiplexing - it is the process of sending multiple data signals over the same medium lx1

(Give mark if diagram exist)

(ii) Bandwidth - it is the maximum amount of data that a transmission medium can carry at any one time (1x1)

(iii) Base band signal- it is a digital signal that is generated and applied to the transmission medium directly without modulation.

(e) Explain the use of these communication devices. (4 marks)

(i) Routers- It interconnect different network. It directs data efficiently towards its intende destination across a network

(ii) Hub - is a component or device in a network that transmit signals by broadcasting them to all the computers on the network. The computer whose address is on the message pick the message from the network that is part of the broadcast domain.

20. (a) Define Internet. (1mark)

- It is a network of networks that connects computers worldwide via a huge set of telecommunication links.

(b) Describe the transmission of data over a telephone line (4 marks) (diagram)

(c) Outline the 'line of sight' principle in wireless transmission. (2marks)

- It is the signal pathway between two receiver stations. There must be no obstacle between the two stations or along the line of sight for this will block the signal.

(d) The first column in the table below contains the formulae stored in cell F10 of a spreadsheet. Enter the formula as they would appear when copied to cell M20 of the same spreadsheet. (3marks)

Formula in F10	Formula in M20
= D10*E10 =A$25 = 4*D$13	= K20*L20 = 1& 25 = 4*K&13

(e) (i) Differentiate between multiprogramming and multiprocessing. (2marks)

- Multiprogramming: The ability of the computer to run more than one program apparently at the same time.
- Multiprocessing: Ability of the computer to run two processors at the same

time

(ii) Give application areas of the following data processing modes. (3 marks)

(a) Batch
- Processing fairly bills e.g. electricity, water,
- Payroll processing

(b) Real time
- Manufacturing, interactive games
- Robot control systems, airline booking

(c) On line
- Airline booking/reservations
- Manufacturing
- E-learning
- E-commerce
- instant messaging

MARANDA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES
PAPER 2
MARKING SCHEME

Question 1.

a) 2mks for correctly labelled column. Penalise ½ mk for each any incorrectly labelled column.
2mks for correctly labelled row. Penalise ½ mk for each any incorrectly labelled row.

8mks for accurately entered data. Penalise ½ mk for each incorrect ly entered data.

b) ½ mk for correct label "total"
½ mk for each correct total ½ x5= 2 ½ mks

2mks for correct formula.

1mk for the correct reference of Tasneem in the formula.

c) 1mk for each correct average marks 1x6=6mks
1mk for correct formula
1mk for the correct reference of computer in the formula.

d) 4mks for the correct arranging of the records in the correct order and details.

e) 3mks for correct figures.
3mks for the correct formula.

f) 1mk for correct labelling of the row/column as REMARKS.
½ mk for each correct remarks. ½ x5=2 ½ mks

1mk for the correct reference of Peter in the formula.

g) 1mk for the correct title
1mk for x axis label

1mk for y axis label

½ mk for each correct bar . ½ x5=2 ½ mks

½ mk for legend

h) ½ mk for each print out ½ x 4= 2mks

Question

a) 4 mks for well designed table with the appropriate field types.
1mk penalty for each incorrect datatype.

1mk for the correct primary key.

1mk for each correct record. 1x15=15mks

b) 2mks for correct sorting using age.
1mk for correct saving .1mk penalty for wrong filename

c) 5mks for all correct entries. penalize ½ mk for each incorrectly entered data.
1mk for correct saving.

1mk penalty for wrong filename

d) (i)5mks for correct query.1mk penalty for any field that was not to be included. Penalize 1mk for each record that doesn't meet required conditions of date and age.
1mk for correct saving .1mk penalty for wrong filename

(ii)2 mks for the query.

2mks for the correct total.

e) (i) 5mks for correct report. Penalise 3 mks for including the male field
(ii) 2mks for correct saving.1mk penalty for wrong filename

(iii) ½ mk for each correct print out ½ x6=3mks

NAIROBI SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES

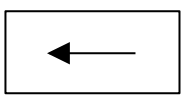
451/1 PAPER 1

MARKING SCHEME

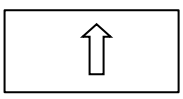
1. State any two peripheral devices that are powered by the system unit. (1 mk)
-Mouse

-keyboard

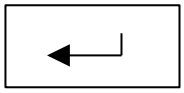
2. The following are symbols of some keys found on the keyboard. Name the keys represented by the symbols. (2 mks)

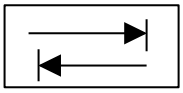


Back space



Shift





Enter/ Return Tab

3) Explain any THREE functions of system software in a computer (3mks)

-Supports the development of other application software.

-Supports the execution of other application software.

-Monitors the effective use of various hardware resources e.g. CPU, memory, peripherals etc.

-Communicates and controls the operation of peripheral devices such as a printer.

-Performs a variety of system utility functions

4. As a computer student you have been asked to assist in buying an input device. State any four factors to consider when buying input devices. (4 mks)

- Type of data to be input
- Speed
- Accuracy of the input device
- Cost of the device
- Availability of the device

5. i. The arithmetic logic unit, the **control** unit and the main memory use electrical pathways or links called buses. State and explain the three types of buses. (3 mks)

- **control bus**- pathway for all timing and controlling of functions sent by the control unit to other parts of the system
- **Address bus**- used to locate the storage position in memory where the next data to be processed is held.
- **Data bus**- this is where actual data transfer takes place.

ii. What is the role of special purpose memories in the microprocessor? (1 mk)

-To enhance its performance

6. Differentiate between primary memory and secondary memory. (3 mks)

Primary Memory	**Secondary Memory**
Directly accessible by the CPU	Not directly accessible by the CPU
Very expensive	Less expensive
Low capacities	High capacities
Fast access time	Slower access time

7. Citing relevant examples state two advantages of integrated software as opposed to single purpose. (2 mks)

-Takes shorter time to install

-The integrated software are compatible and have common features so easy to learn

8. a. Define the term mail merging (1 mark)

- Process of generating personalized documents or letters by combining main document with an existing data source.

b. Name **two** files that are created in mail merging process (1 marks)

-Primary file / Main document

-Secondary file/ Data source

-Merged file

9. (a) Distinguish between a workbook and a worksheet as used in spreadsheets (2mks)

- Worksheet: A component in which data values are entered. It contains rows and columns.
- Workbook: A group or collection of worksheets.

(b) What is the meaning of "what if analysis" with respect to spreadsheet? (1mk)

- It's a feature used in forecasting where, the probability of changing or altering of values is measured to predict likely future occurrences.

10. Define the following terms in relation to internet (2 mks)

i). Downloading

-Transferring information from a remote computer to a local storage.

ii). Hyperlink

-text or picture on an electronic document that causes other web pages to open when the link is clicked.

11. Benjos was instructed by his teacher while typing a Microsoft word document to replace all the occurrences of the word MS with Microsoft. Highlight the steps to do this (3mks)

- Click edit menu then replace command
-The find and replace dialog box appears
-In the find what box type MS
-In the replace with box type Microsoft
-Click find next button
-Click the replace all button

12. What is the difference between logical and physical file? (2 mks)

Logical file is viewed in terms of what data items it contains and details of what processing operations may be performed on the data items while a physical file is one that is viewed in terms of how data is stored in storage media and how the processing operations are made possible.

13. Explain any three types of computer processing files. (6 mks)

Character- is the smallest element in a computer file and refers to a letter, number or symbol that can be entered.

Fields – is a single character or collection of characters that represents a single piece of data.

Record- is a collection of related fields that represent a single entity.

14. Give a reason why HTML is not considered as a true programming language. (1 mk)

-It does not have the declaration part and control structures.

15. (a) Define the following computer crimes

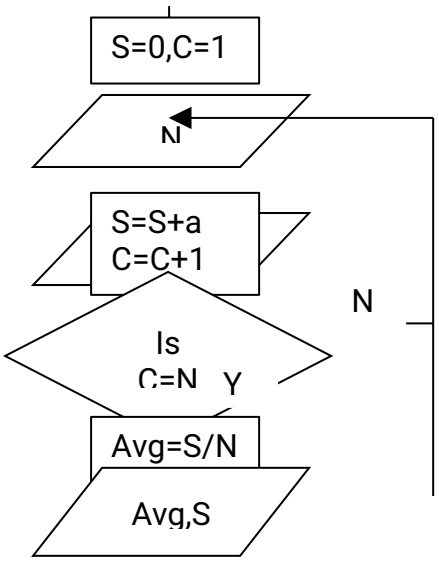
(i) Piracy (lmk)

-Making illegal copies of copyrighted software, information or data.

(ii) Industrial espionage (lmk)

-Spying on your competitor to get information that you can use to counter or finish the competitor.

16. Draw a flowchart for a program that is to prompt for N numbers, accumulate the sum and them find the average. The output is the accumulated totals and the average.



Start
Set S=0
C=1
Print "Enter N"
Read N
Print "Enter New No"
Read a
Calculate S=s+a
C=S+1
Until C=N
Avg=S/N
Print Avg, S
Stop

(c) Explain **three** types of control structures use in programming. (3mks)
-Sequence
-Selection/decision
-Iteration/looping

17. (a) i. Subtract 110_2 from 11010_2 (1mk)

11010_2
$\underline{\quad 110_2}$
10100_2

ii. Find the sum of binary number 101.101_2 and 110.100_2 (1mk)

101.101_2
$\underline{110.100_2}$
1100.001_2

(b) i. Convert binary number 11010110.1001_2 into octal number. (1mk)

11	010	110	100	1
3	2	6 . 4	1	$_8$

ii. Convert binary number 11010110.1001_2 into hexadecimal number. (1 mark)

1101	0110	.	1001
D	6	.	9 $_{16}$

(c) Convert the following numbers to their decimal equivalent

i. 11.011_2 (2 marks)

$(2^0 \times 1) + (2^1 \times 1) + (2^{-1} \times 0) + (2^{-2} \times 1) + (2^{-3} \times 1)$

$= 1 + 2 + 0 + 0.25 + 0.125$

$= 3.375_{10}$

ii. 0.11011_2 (2 marks)

$0. (2^{-1} \times 1) + (2^{-2} \times 1) + (2^{-3} \times 0) + (2^{-4} \times 1) + (2^{-5} \times 1)$

$0. 5 + 0.25 + 0.0 + 0.0625 + 0.03125$

$=0.84375_{10}$

(d) i. Convert $3BD_{16}$ to Octal. (3mks)

A = 10 = 1010

B = 11 = 1011

C = 12 = 1100

D = 13 = 1101 ✓1mk

001	010	101	110	001	101
1	2	5	7	1	5

✓1mk

Therefore $ABCD_{16} = 125715_8$ ✓1mk

ii. Using one's complement, calculate $5_{10} - 9_{10}$. use six bit in your calculation. (3mks)

Conversion

$5_{10} = 000101_2$

$9_{10} = 001001_2$ ✓1mk

-9_{10}: ones complement = 110110

Adding 000101 ✓1mk

110110 +

$111011_{2\neg\neg}$ ✓1mk

(e) State the following types of transcription errors: (2 marks)

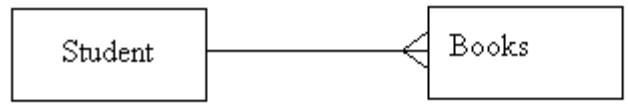
i. 3455 instead of 3456

3455 instead of 3456 (misreading)

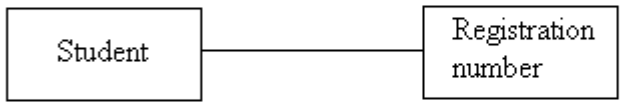
ii. Simth instead of Smith

Simth instead of smith (Transposition)

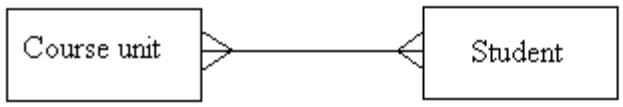
18. (a) State and explain the following types of relationship as used in database design

i. 

(2 marks)

ii. 

(2 marks)

iii. 

(2 marks)

For the above figure:

i. one to many relationship. Means a student can borrow many books e.g in a library

ii. One to one relationship. Implies that a student has one registration number

iii. Many to many relationship. Implies that there are many course units that can be taken by many students

(b) i. Explain the difference between primary key and an index key as used in database application (2 marks)

A primary key is a unique identifier for a database record while index key

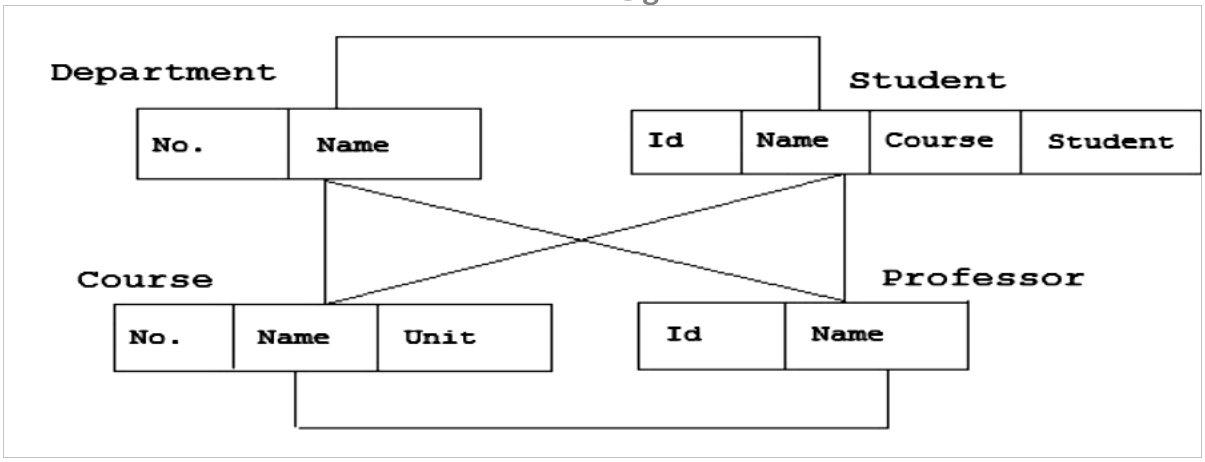
An index is a key used to more quickly find rows in the table based on the values which are part of the index

ii. Outline the functions of a primary key (2 marks)

- Uniquely identifies a record
- It prevents null entry
- Eliminates data redundancy

(c) Describe the following types of database model

i. Network model (2 marks)



In the network model, entieies are organized ub which some entities can be accessed through several path

ii. Relational model

PubID	Publisher	PubAddress
03-4472822	Random House	123 4th Street, New York
04-7733903	Wiley and Sons	45 Lincoln Blvd, Chicago
03-4859223	O'Reilly Press	77 Boston Ave, Cambridge
03-3920886	City Lights Books	99 Market, San Francisco

AuthorID	AuthorName	AuthorBDay
345-28-2938	Haile Selassie	14-Aug-92
392-48-9965	Joe Blow	14-Mar-15
454-22-4012	Sally Hemmings	12-Sept-70
663-59-1254	Hannah Arendt	12-Mar-06

ISBN	AuthorID	PubID	Date	Title
1-34532-482-1	345-28-2938	03-4472822	1990	Cold Fusion for Dummies
1-38482-995-1	392-48-9965	04-7733903	1985	Macrame and Straw Tying
2-35921-499-4	454-22-4012	03-4859223	1952	Fluid Dynamics of Aquaducts
1-38278-293-4	663-59-1254	03-3920886	1967	Beads, Baskets & Revolution

In this type of organization, related data items are stored together in a relations or tables. Relationship can be created between tables such that a record or records from one table relates to another or other records in another table.

19. (a) i. What is an operating system? (1 mark)

- This is a suit of programs that provide a facilities that enable the other programs to use the hardware in a safe and controlled way
- Is a suit of programs that takes over the operation of the computer to the extent of being able to allow a number of programs to be run on the computer without human intervention by an operator

ii. Explain how an operating system controls I/O devices. (2mks)

The operating system manages the use of input and output devices. This is done by the use buffers .The operating instructs input and output buffers to take inputs from an input device or to take outputs from the processor while the process using the input or output is suspended .when the process which needs the input is made active once again, the operating system will command the buffer to send data.

iii. Maintaining security is one of the functions the operating system. Explain how the operating system maintains security (2mks)

Maintaining security-in networks and larger computers each user is given a username or ID and passwords to gain access to the computer system. the operating system keeps a register of all the names so that the only persons with valid usernames or IDs passwords can access the system. The operating system keeps a log which records users logged in, the length of time each user stayed in the system and what they did.

(c) What does the following control measures against computer crime involve? (5 mks)

i. Audit trail

Careful study of an information system by experts to establish all weaknesses in the system that could lead to security threats

ii. Data encryption

Combination of letters and characters that deter unauthorized users of computers from accessing data

iii. Log files

These are special files that keep a record (log) of events on the use of computers and resources of an information system.

iv. Passwords

Is a combination of characters that prevents other users from opening and changing a document without permission?

v. Firewall

Monitor and control access to or from protected networks

(c) Briefly explain what happen during power on self test (POST) (3 mks)

- A line of text start scrolling up on the screen
- Check on the existence and conditions of the drives such as keyboard, monitor and mouse
- If a problem occurs due to malfunction, the process is halted and error message is displayed on the sreen

(d) Explain the functions of complementary metal-oxide semiconductor (CMOS) (2 mks)

- keep data that needs to be retained even when the computer is turned off and unplugged (a small battery is used to supply power to the CMOS chip)
- maintain system date, time among others

20. (a) i. List four stages in data collection (2mks)

- creation
- transmission
- preparation
- media conversion
- input validation
- sorting

ii. Describe two types of data processing methods. (2mks)

Manual – Use of a pen and a paper

Mechanical – Use of typewriter and calculators

Electronic – Use of computers

(b) What is meant by the following (2mks)

i. Reference file

Reference file – used for reference or lookup purposes that are required during processing

ii. Report

Report file – used to store permanent records extracted from the master file or generated after processing operation

(c) Explain the following file organization methods

i. Direct file organization (2 marks)

a record key is used to determine where a record is stored on the storage medial e.g magnetic and optical disk

ii. Index –sequential file organization (2 marks)

an index is used to enable the computer to locate individual records on the storage media

e.g magnetic drum

(d) i. List down two examples of High level language (HLL) and state its most appropriate application. (2mks)

- **PORTRAN** – for scientific and mathematical programs
- **PASCAL** – Teaching structured programming
- **COBOL** – Developing business oriented programs
- **ADA** – Developing real time and industrial systems

ii. State two advantages of high level languages (1 mark)

- portable
- user friendly
- flexible
- east to debug

iii. State two disadvantages of high level languages (1 mark)

- have to be compiled to machine readable form before execution
- require large computer memory to run
- complexity of instructions which slow down program processing

e) Give **two** benefits of structural programming. (1 marks)

b) Easy to read

Easy to run and code

Easy to modify

Easy to test

Flexible

NAIROBI SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
COMPUTER STUDIES PAPER 2

MARKING SCHEME

1. Presence of database Use of the correct name

b. Presence of the two tables @l/2 =

Correct naming @l/2

Correct decomposition @1

c. Presence of relation = Enforced integrity

d. Presence of two forms @1 =

Use of correct form names @1 =

Complete data entry in each table @4 =

Presence of errors up to 4 errors (deduct 2 mks per table)

Incomplete data entry award ½ marks per table

e. Query to retrieve who cleared (calculate balance) 2 mks

(With the correct criteria) 2 mks

Presence of report 1 mks

Correct name of report 1 mks

Correct title 1 mks

Correct records 1 mks

All buyer details 2 mks

f. Reportpresence = 2 mk

Well named 1 mks

Correct title 1 mks

Outlined = 2 mks

Summary 2 mks

g. Presence of the query 2 mks

Correct query name 1 mks

Correct criteria (2 mks for each part) 4 mks

h. Presence of the report 1 mks

Vehicle type summary 1 mk

Grand total 1 mks

i. Presence of print outs @ % *4 1 mks

landscape @l/4*4 1 mks

Presence of workbook 1 mks

Correctly saved (correct name) 1 mks

10 records correctly entered (5)1/2*10 5 mks

Auto fit columns @l/2 *10 5 mks

Presence of borders3 mks

b. Subject totals using a function/formula½*5

c. Total marks per stream ½ *10

d. Mean mark for each student ½ *10

e. Ranking for every student ½ *10

f. Presence of a column chart 1 mks

Correct content 1 mks

Labeling x-axis 1 mks

Y-axis 1 mks

Legend 1 mks

Title 1 mks

Different sheet 1 mks

g. Sorting of records 2 mks

Average using subtotals Yz*10 5 mks

h. Printing the three sheets