

KCSE 2025 CROSS-COUNTRY MOCKS

COMPUTER STUDIES

(KCSE TRIALS 1-10)

This compilation offers a systematically arranged assemblage of simulated assessments, specifically formulated for KCSE. Each assessment is meticulously crafted to align with the curriculum requirements, thereby offering students a thorough practice experience.

CONFIDENTIAL!

For Marking Schemes

Mr Isaboke 0746 222 000 / 0742 999 000

SUCCESS TO ALL CANDIDATES

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 1**

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other ***THREE*** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

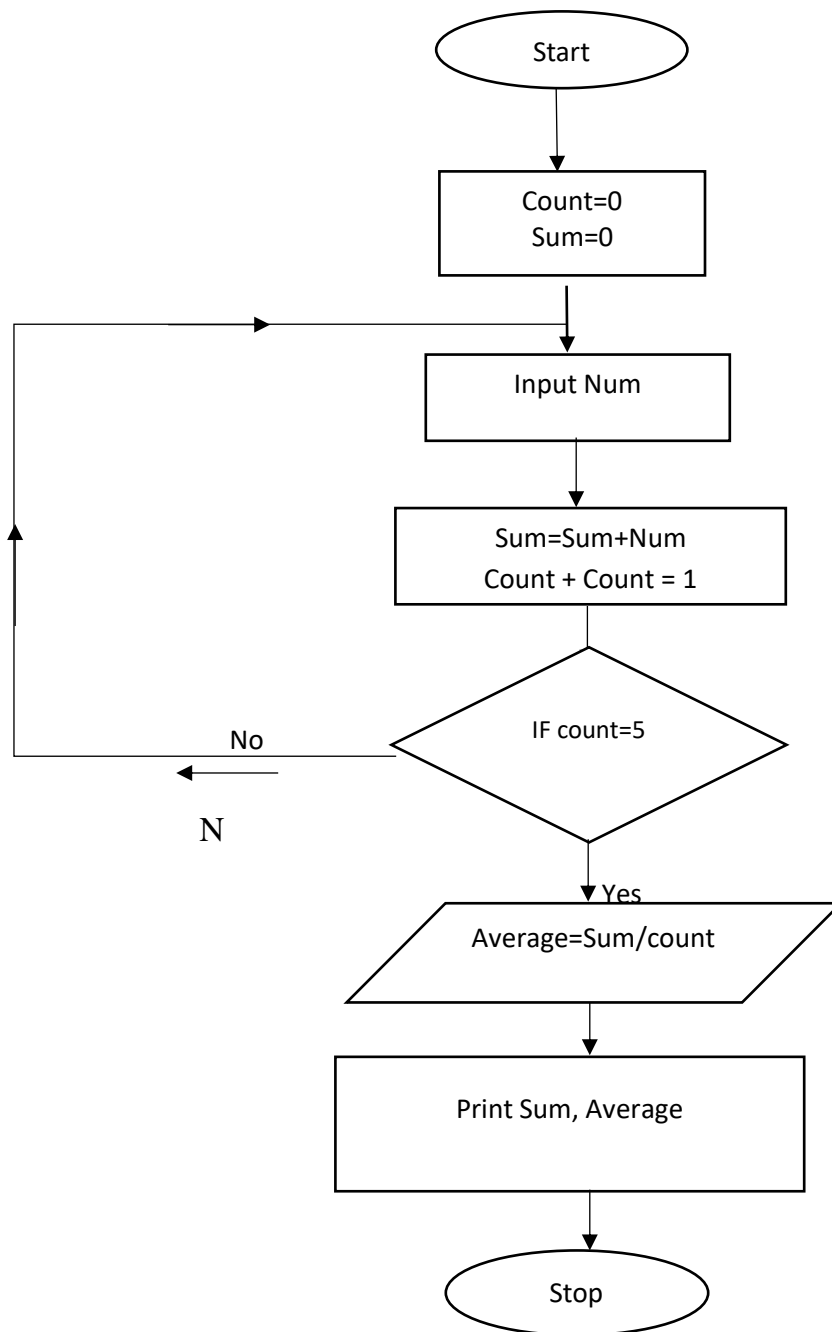
Answer All questions in this section

1. Give reasons why the following fire extinguishers are not recommended for use in the computer laboratory. (2 Marks)
 - i. Liquid based
 - ii. Powder based
2. Differentiate between embedded and integrated computers (2 Marks)
3. Describe the following terminologies as used in reference to visual display unit. (4 Marks)
 - a. Resolution
4. Describe the following components of a spreadsheet: (3 Marks)
 - a. Worksheet
 - b. Database
 - c. Graphs
5. a. State two threats to data and information. (1 Mark)
b. List four types of risks posed by computer viruses to the computer systems. (2 Marks)
 - c. State two measures against unauthorized access. (2 Marks)
6. Automated production is an effect of ICT on employment, state three advantages of automated production. (3 Marks)
7. Describe the following terms used in reference to the CPU: (3 Marks)
 - a. Fetch
 - b. Decode
 - c. Execute
8. Explain three functions of an information system. (3 Marks)
9. Describe the following terms as used in system development: (4 Marks)
 - i. Control
 - ii. System entropy
10. Define the term hot- swapping (1 Mark)
11. State two functions of the power supply unit (2 Marks)
12. Define peripheral device interfacing (2 Marks)
13. Explain the following terms as used in the word processing. (2 Marks)
 - i. Footnote
 - ii. Endnote
14. a) Explain a situation when each of the following Desktop Publishing programs features may be used when creating a document (2 marks)
 - (i) Crop
 - (ii) Transparency
15. Name any two types of non-printable guides in DTP. (2 Marks)

SECTION B (60 Marks)

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

- 16.** A program is expected to accept 10 numbers calculate their sum and average and produce the output. Below is a flowchart that was used by Isaboke High students to represent the program. Study the flowchart below and answer the questions that follow:



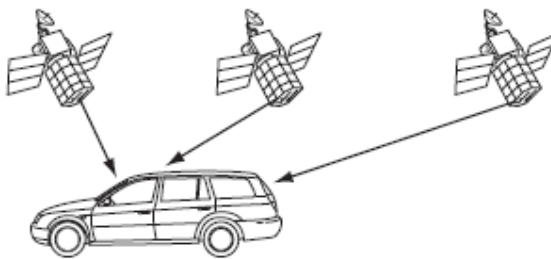
- a) The flowchart has errors in it. Identify any four errors that were made in the flowchart stating how each of them should be corrected. (4 marks)
- b) Write a pseudocode for the corrected version of the above flowchart. (7 marks)
- c) i) Give any two examples of fourth generation languages. (2 Marks)
- ii) List two factors that need to be considered when selecting a programming language.(2 marks)
- 17.a) Outline two disadvantages of questionnaires as a data gathering techniques. (2 marks)**
- b) State three activities that take place during system implementation phase of SDLC. (3 marks)
- c) Define the term Feasibility study as used in system development. (1 mark)
- d. **Perform the following conversions**
- i. Convert 111.010_2 to decimal number. (3 marks)
- ii. $17^{4/5}$ (base 10) to binary (3 marks)
- iii. Distinguish between BCD and EBCDIC coding schemes (2 mark)
- e. Give two reasons why a firm may decide to computerize its operations (1 mark)
- 18.a. Describe the following data types as used in spreadsheet. (4 Marks)**
- i. Labels
- ii. Values
- iii. Formulas
- iv. Range
- b. Differentiate between logical files and physical files. (4 Marks)
- c. i. Define serial file organization (1 Mark)
- ii. Name any two disadvantages of serial file organization (2 Marks)
- d. Give two advantages of using a template in a word processor (2 Marks)
- e. State two components found in an electronic Point-of-sale terminal. (2 Marks)
- 19.a. Describe the following types of software (3 Marks)**
- i. Proprietary software
- ii. Shareware
- iii. Freeware
- b. i, Define the term deadlock as used in operating system. (1 Mark)
- ii. The diagram shows five operating system functions and five descriptions. Draw a line between each operating system function and its description. (4mks)

Function

Description

Interrupt	Many processes appear to run simultaneously
Utility	Data are temporarily held in a buffer waiting for an output device to access it
Memory Management	A signal that causes the operating system to take a specified action
Spooling	A program that performs a specific task required for the operation of a computer system
Multitasking	A process of assigning blocks of memory to programs running in a computer

c. Satellite navigation systems are used to give the vehicle driver directions.



- i. How does the system know the exact position of the vehicle? **(3 Marks)**
- ii. Give two advantages to the driver using this system. **(2 Marks)**
- iii. Give two problems associated with satellite navigation systems. **(2 Marks)**

20. a. Define the following terms

- i. Trouble shooting **(2 Marks)**
- ii. Installation

b. Describe any two types of files used in operating systems. **(2 Marks)**

c. A database table, DEVICE, has been set up to record the electronic equipment used in a small business

Device ID	Device Type	User	Purchase Date	Purchase Price (\$)	Portable
3	Desktop	Alan Swales	14/02/2017	1350.00	N
4	Laptop	Chantel Law	01/02/2016	1460.00	Y
5	Tablet	Abdula Saud	31/12/2016	1000.00	Y
6	Desktop	Abdula Saud	14/03/2017	1000.00	N
7	Laptop	Alan Swales	15/03/2016	1700.00	Y
8	Tablet	Taona Jaji	16/12/2016	470.00	Y

(a) The query-by-example grid below selects certain records.

Field:	User	Portable	Purchase Price (\$)
Table:	DEVICE	DEVICE	DEVICE
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:		Y	>1000
or:			

Show what would be the output from the query-by-example.

(2 Marks)

(b) Complete the query-by-example grid below to select all Desktop devices that were either purchased before 31/12/2016 or cost under \$1000. Only show the Device ID and Device Type.

(5 Marks)

Field:	Device ID	Device Type	Purchase Date	Purchase Price
Table:	DEVICE	DEVICE	DEVICE	DEVICE
Sort:				
Show:				
Criteria:				
Or:				

c. Differentiate between a primary key and an index key

(2 Marks)

d. State the title of the ICT personnel in charge of regularly updating the organization's website.

(1 Mark)

e. What program is the personnel above likely to use to accomplish his tasks?

(1 Mark)

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 1**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The Management of a company owning a chain of hotels intend to use a spreadsheet program to compute the revenues in thousands of Kenya Shillings for the hotels during the 1st, 2nd, 3rd and 4th quarters. The hotels are rated as 2 star, 3star, 4 star and 5 star. **Figure 1** below shows an extract of the worksheet.

	A	B	C	D	E	F	G
	HOTEL	STAR CATEGORY	1 ST	2 ND	3 RD	4 TH	TOTAL REVENUE
1							
2	City Inn	4	174,400	177,400	127,900	180,800	
3	ForkLand	2	173,700	111,300	194,900	103,700	
4	Highway	4	182,900	136,300	143,900	144,600	
5	Hiltop	5	188,500	124,700	173,500	171,200	
6	Membley	5	187,800	118,700	115,900	195,500	
7	Voyager	3	139,100	178,400	109,600	179,700	
8	Eden	2	200,000	112,200	109,100	117,200	
9	Palm tree	4	169,800	163,000	173,000	148,300	
10	The Shaza	5	163,900	106,800	107,100	150,500	
11							
12							
13							
14	Total Quarterly Revenue						
15	Administrative cost						
16							
17							
18		30%					

Figure 1

- (a) Open a spreadsheet program and create the worksheet extract as it appears in Figure 1. Save the workbook as **Task 1** (11 marks)
- (b) Use a function and cell addresses to calculate:
- (i) Total revenue for each quarter; (2 marks)
- (ii) Total revenue for each hotel.(2 marks)
- (c) (i) Insert two rows above row 1 and type the title "MBALAMBALA GROUP HOTELS" in cell A1 (2 marks)
- (ii) Merge the cells in the range A1: G1. (1 mark)
- (iii) Apply bold and font size 15 to the title. (1 mark)

- (d) Using cell addresses only, compute the administrative cost for each quarter given that the cost is a percentage of total revenue and the percentage rate is in cell B18. **(3 marks)**
- (e) Apply thick outside borders and regular inside borders to cells in the range A3:G18 **(2marks)**
- (f) (i) Copy all the contents of the current worksheet to a new worksheet. **(2marks)**
(ii) Rename the old worksheet as **original** and the new worksheet as **formatted** **(2 marks)**
- (g) (i) Change the page layout orientation of the formatted worksheet to landscape and the page size scaled to 80%. **(2 marks)**
(ii) Enter the values 2, 3, 4 and 5 in the cell range B20: B23 respectively representing the hotel star category ratings. **(1 mark)**
(iii) Using a function and cell references:
I compute the total revenue for each hotel references;
II compute the total revenue for each hotel category in the 1st quarter using reference values in the range B20: B23 in cells C20: C23. **(5 marks)**
(iv) Sort the revenues from the hotels in descending order of hotels **(2 marks)**
- (h) (i) Create a column chart that compares the revenues of the hotels in star category 4 for the 1st and 2nd quarter. **(4 marks)**
(ii) Format the chart created as follows:
I. Chart title "FIRST AND SECOND QUARTER REVENUES" **(2 marks)**
II. Move the chart to a new sheet and rename the sheet as **FourStar Revenues**. **(2marks)**
(i) Save the changes and print later each of the following:
(i) **original** worksheet showing the column and row headings; **2 marks)**
(ii) **formatted** worksheet; **1 mark)**
(iii) **FourStar Revenues** chart. **(2marks)**
2. Popo City planners intend to use a Desktop Publishing program to draw a plan for a section of a city. Assume you have been given the task.
(a) (i) Open a desktop publishing program and set the page layout orientation to portrait and paper size to A4. **(2 marks)**
(ii) Save the publication as **Task 2** **(1 mark)**
(b) Create the city plan as it appears in **Figure 2** ensuring that the design covers the entire printable area of the page. **46 marks)**

c) Save the changes and print the publication later.

(1 mark)

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POPO CITY PLAN

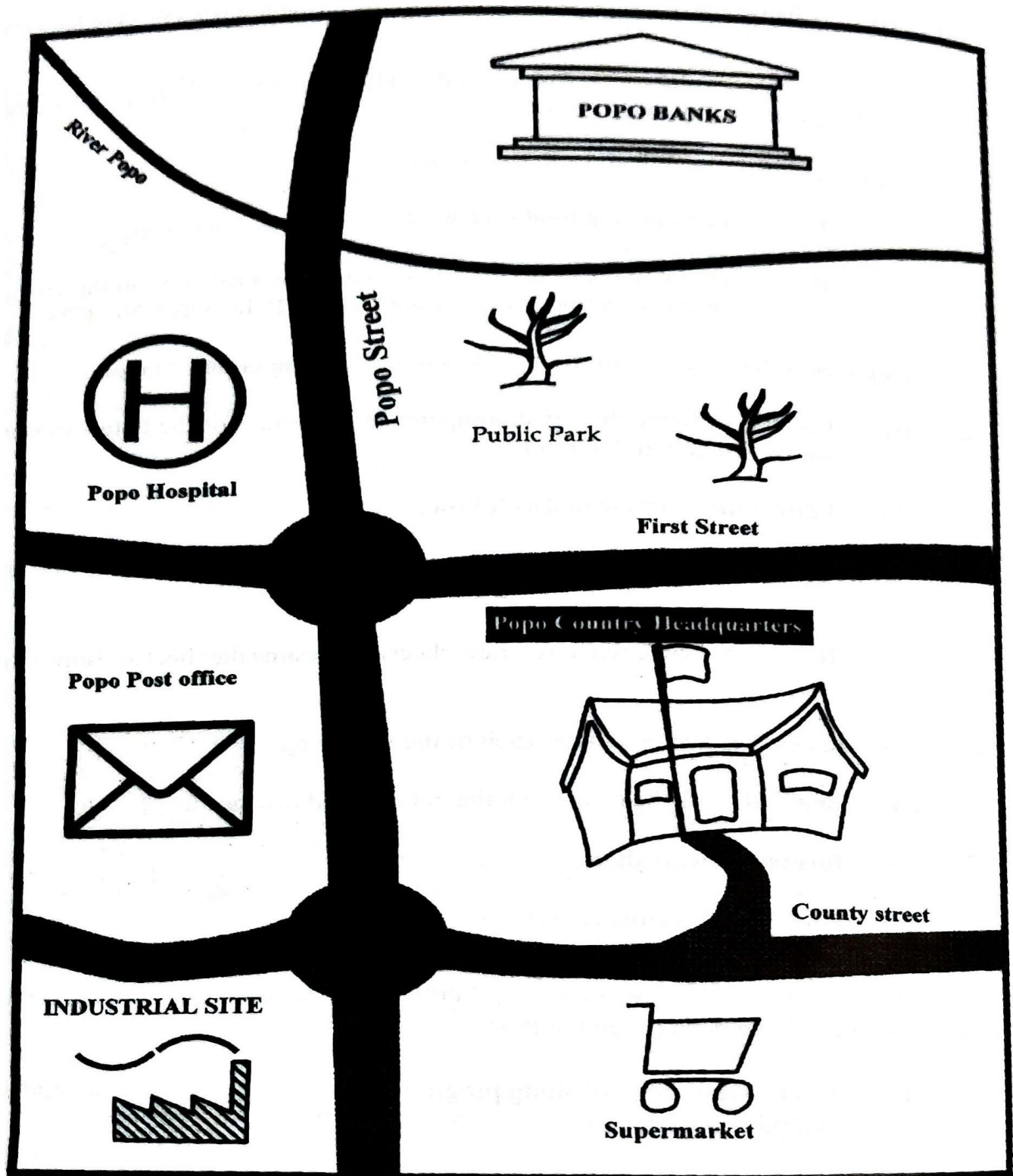


Figure 2

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 2**

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

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SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

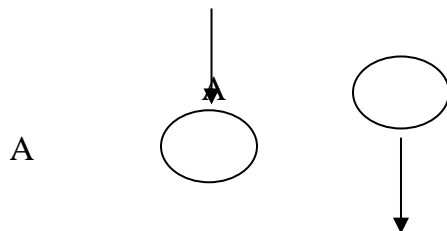
1. List down **four** features of a user friendly program (2Marks)
2. a) Define the term file organization. (1Mark)
b) Explain **two** methods of file access. (2Marks)
3. List **four** number systems that the design and organization of a computer may depend on. (2Marks)
4. Explain the meaning of the following terms as used in computer communication (2Marks)
a) Modulation
b) Remote communication
5. Using one's complement, calculate $11011_2 - 111_2$ and leave your answer in binary notation. (3Marks)
6. List **three** types of computers that are classified according to the type of signal they use when functioning. (3Marks)
7. In relation to DTP, explain the meaning of (2Marks)
a) Pasteboard
b) Master page
8. Give **two** main functions of a primary key in a database. (1Mark)
9. Differentiate between LPT ports and COM ports as used in Computer Printers. (2Marks)
10. a) Define the term Cyber space. (1Mark)
b) Give **three** components of a virtual reality system and state their use. (3Marks)
11. Highlight any **two** ways in which computers are used as industrial systems. (2Marks)
12. i) Indicate the type of cell reference depicted by the following. (3Marks)
a) \$H\$5
b) H \$ 5
c) H 5
ii) Give **three** uses of spreadsheets in a government office concerned with carrying out national census (3Marks)

13. The Chairman IEBC has called upon a System Analyst to implement an electronic voting system. He intends to use voter's fingerprints, Identity cards and voter's cards as security measures to ensure free and fair elections. Recommend with reasons four input devices that they should use/buy. (4Marks)
14. State any **four** security control measures that can be taken to detect and protect computer systems against computer crimes. (2Marks)
15. List **four** features of Electronic mail (2Marks)

SECTION B (60 MARKS)

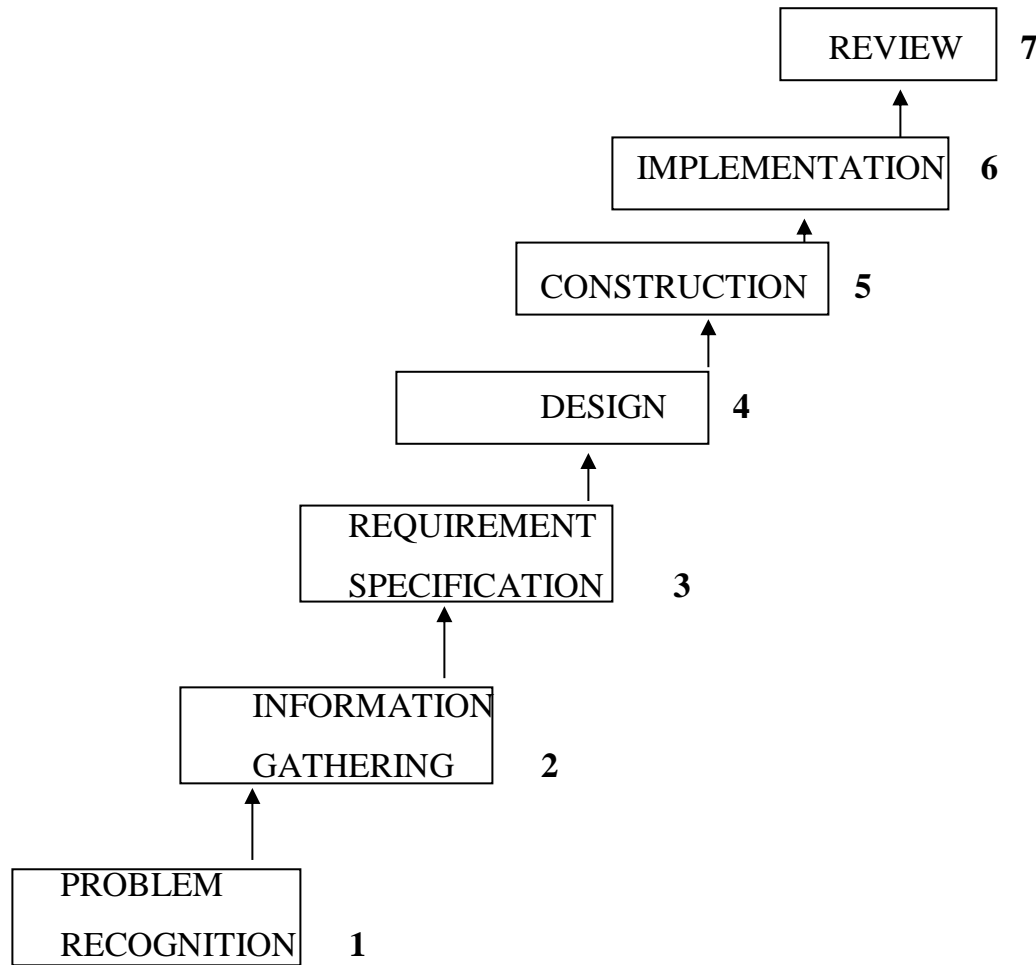
Answer questions 16 and any other three questions from this section

16. a) Define the following terms as used in programming. (2Marks)
- i) Assembler
 - ii) Monolithic program
- b) With the aid of flowchart segments, highlight two differences between the **REPEAT....UNTIL** and **WHILE.....DO** statement structures. (4Marks)
- c) Give the name and use of the flowchart symbol below. (1Mark)



- i) Name
 - ii) Use
- (d) State any **two** functions of programming language **translators** (1 mark)
- e) Draw a flowchart that can be used to create a program which accept a numerical pin, if the pin is equal to 0721, the program outputs , correct pin and asks for personal pin, if the pin is 1737, the output is “Admitted to UON,” 1738, the output is “Admitted to MARKU”, 1739 the output is “Admitted to KEMU” after outputting the secret message the program stops. (7 Marks)

17.a) The following diagram shows the stages of developing an information system.



- i) List any **four** methods that can be used to achieve the second stage in above. (2Marks)
 - ii) List any **four** areas that have to be designed at the fourth stage. (4Marks)
 - iii) Give **one** likely consequence of a project that does not stick to its schedule (2Marks)
 - b) Explain the meaning of the following system characteristics. (4Marks)
 - i) Entropy
 - ii) Controls
 - c) State the **three** functions of an information system. (3Marks)
- 18.(a) Distinguish between the following pairs of word processing terms
- i) A widow and an orphan (2 marks)
 - ii) Footnote and end notes (2 marks)

b) Study the Microsoft Word table below and answer question which follow

Item		Quantity	Price(sh)	Total
Bread		2	33.0	66.0
Milk(litres)		4	30.0	
Potatoes		1	75.0	
Others	Cooking fat(kg)	1	180.0	A
	Salt(250 g)	1	15.0	15.0
Total				B

i) Supply a formula or function in Cell with letter **A** to calculate the total amount spent on 1 kg of cooking fat **(2 marks)**

ii) Supply a formula or function in cell with letter **B** to calculate total expenditure on all items **(2 marks)**

(c) The following is a spreadsheet relating to a farmer.

	A	B	C
1	Crop	Amount	
2	Maize	150	
3	Bean	300	
4	Cashew nuts	850	
5	Cabbages	1036	

A function =IF (B2<200, “Not Viable”), IF (B2>300, “Moderate”), IF (B2>1000, “Viable”))). Give the appropriate result returned in cells **C2, C3, C4** and **C5**

(2Marks)

d) Define the terms as used in databases **(3Marks)**

i) Attribute

ii) Relationship

iii) Dynaset

e) List any **four** database models. **(2marks)**

- 19. a) State three characteristics of RAM. (3Marks)**
- b) A computer virus is malicious software which may affect the smooth running of a computer system or carry out illegal activities in the computer.**
- i) Name three types of computer viruses and state the effect of each when it gets in to a computer (3 marks)**
- ii) State any two methods to control infection of a standalone computer by virus(2marks)**
- iii) Mr. Yugo, the Biology teacher, intends to use a multimedia system to demonstrate dissection of a frog.**
- What is a multimedia system? (1 mark)**
- List four components that make a multimedia system (2 marks)**
- d) State any two softcopy output devices. (2marks)**
- e) State two main ways in which secondary storage devices are classified (2 marks)**
- 20. a) Distinguish between guided and unguided transmission media and give one example of each. (3Marks)**
- b) State two functions of Hubs. (2Marks)**
- c) Explain two different ways in which computers can enhance communication in Kenya today. (4Marks)**
- d) State and explain how the benefits of technology were not effectively used during the 2007 general elections. (3Marks)**
- e) Explain the difference between a data Terminal Equipment (DTE) and Data Circuit – terminating Equipment (DCE) and give examples of each. (3Marks)**

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KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 2**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

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- e) All questions carry equal marks*
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- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The following table was extracted from a form four class. Create a workbook named performance .Enter it as it is and save it as grades. Use it to answer the following the questions that follow. **(12marks)**

End of term Exam Analysis						
2012 Exam						
	Name	Exam1	Exam 2	Exam 3	paper	Participation
1	Jane	64	70	73	85	75
2	Tony	70	77	88	95	90
3	Jenney	77	83	79	88	80
4	Richard	69	43	81	78	75
5	Rachael	91	90	86	95	88
6	David	44	26	54	78	80
7	Roger	77	85	86	85	88
8	Allen	83	86	92	85	88
9	Victor	97	80	82	85	68
10	Allan	69	69	50	85	75
11	Brad	95	89	89	95	85
12	James	91	84	92	85	80
13	Arthure	87	79	84	85	80
14	Robert	76	73	80	82	80
15	June	82	84	74	88	85
16	David	70	41	57	73	70

- (a) Add the following two students before victor and enter the following information: **(3marks)**

Name: Thomas, John McCullum.

Exam 1: 82 65

Exam 2: 75 79

Exam 3: 81 84

Paper: 87 92

Participation: 94 65

- (b) Copy the data in the worksheet grade and paste it in worksheet 2 and save as Rank.
(2marks)
- (c) Calculate the final average for each student. The three exams should each count 25% of the final average, the paper should count for 15%, and participation should count for the remaining 10%. (5marks)
- (d). Calculate the class average for each exam. (3marks)
- (e) Apply one decimal point to the average point (2marks)
- (f) Rank the students based on average points (3marks)
- (f) Sort the students based on rank after average in ascending order (2marks)
- (g) Create a column after rank and name it Grade. Using IF function, grade the students based on the following criteria. (A=90-100; B=80-89; C=70-79; D=60-69; F=below 60) (6marks)
- (h) Below the average for each exam get the highest score and lowest score for exam1, exam2, and exam3 (4marks)
- (i) Create a chart that shows the grade distribution for the final average (5marks)
- (j) Print the following GRADE, RANK and CHART (3marks)

2) Create a database. Save it as Students Database on Desktop inside your folder indicating your name and index number. (2marks)

(a) Create a table in design view using the following information (4marks)

Field Name	Data Type	Field Size/Format
Student Id	Auto number	Long integer
Name	Text	20
Surname	Text	20
Date of Birth	Date/time	short Date
Age	Number	long integer
Exam Fee	Currency	Currency

- b) Choose the most appropriate primary key and save the table as Students' Details. (2marks)
- (c) Create a validation rule for the Age field which does not allow students under the age of 16 to apply for exams. Create a validation text to complement the validation rule stating "Student is too young". (2marks)

(d) Add the following field below surname

(2marks)

Town	Text	15
------	------	----

e. (i) Create another table in design view

(3marks)

Field Name	Data Type	Field size/Format
Student Id	Number	Long Integer
Result	Number	Long Integer
Subject	Text	20

(ii) Create a validation rule on the Results field so that marks greater than 100 would not be allowed to be keyed in. Create a validation text to complement the validation rule stating “Mark is greater than 100”.

(3marks)

f. Re-order the subject field with the result field so that the subject field is now after the Student Id field.

(2marks)

g. (i) create a student details form to Input the following data in the Students’ Details table(5marks)

student id	Name	Surname	Town	Date of Birth	Age	Exam Fee
1	John	Black	Mosta	16/07/1981	29	25
2	Mary	Smith	Qrendi	16/05/1982	28	30
3	Anne	Hamlet	Mosta	18/07/1983	27	40

(ii) Create a student’s marks form used to Input the following data in the Students’ Marks table

(5 marks)

Student id	Subject	Result
1	Computer	60
1	math’s	75
1	English	30
2	Computer	50
2	Maths	85
2	English	35
3	Computer	95
3	maths	20
3	English	40

- (h). Create a one-to-many relationship between the Students' Details table and the Students' Marks.
Enforce referential integrity to the relationship. **(3marks)**
- (i). Open the Students' Details table, change the Surname Hamlet to Hammell **(2marks)**
- (j) Sort the data in the Students' Details table in alphabetical order according to Surname.
(2marks)
- (k) Create a query based on the Students Details table showing all the information about those students who live at Mosta. Save it as Locality. **(2marks)**
- (l) Create a two-table query based on Students' Details and Students' Marks using the Student Id, Name and Surname fields from the Students Details table and the Subject and Result fields from the Students Marks table. The query must display those students who got a result of 75 marks or more. Save the query as High Achievers **(4marks)**
- (m) Create a report based on the High Achievers query. **(4marks)**
- (n) Create a report called Results. Use the following fields: Student Id, Name, Surname, Subject and Result fields. Calculate the sum and average of each record. In the header of the report, include the title Results. **(5marks)**
- (o) Print the following high achievers and results **(2marks)**

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KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 3**

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

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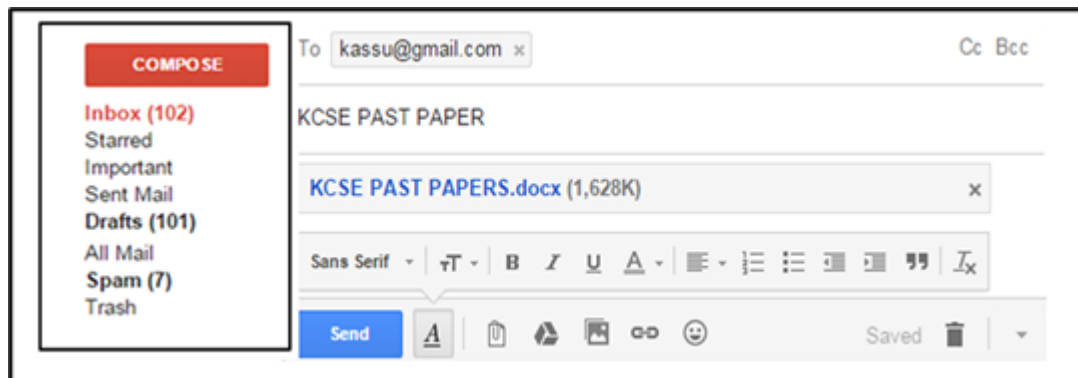
FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

1. Give **TWO** reasons why Powder type fire extinguishers are not recommended to be used in a computer laboratory. (2 Marks)
2. State the purpose of each of the following memories in a computer system. (2 marks)
 - (i) ROM
 - (ii) RAM
3. State two factors that one would consider when selecting data entry method in computing. (2 Marks)
4. Describe the following types of printers and state one application area of each. (3Marks)
 - (a) Dot matrix
 - (b) Thermal printer.
5. Differentiate between in-house software and freeware. (2 Marks)
6. Give two importance of feedback mechanism in systems (2 Marks)
7. With an aid of a diagram, explain one-to-one database relationship. (2 Marks)
8. KASSU Secondary School intends to set up internet connection in their school for e-learning purposes. Advise the school management on four internet connectivity requirements that is required for them to be able to access internet. (2 Marks)
9. The figure below shows an extract of an e-mail application.



What is meant by each of the following terms: (3 Marks)

- (a) Trash
- (b) Spam
- (c) **Inbox**

10. State two ways in which users in an organization can be a security threat to data in an information system. (2 Marks)
11. State three negative impact of information communication technology on the Environment. (3 Marks)
12. In a computer based information system, state the purpose of the following files and give **one** example where such a file may be required in a school. (4 marks)
- a. Report file.
 - b. Sort file.
13. State three responsibility of a Database administrator in an organization. (3 Marks)
14. With an example for each, describe how computers are used in the following areas of education; (3 Marks)
- a. Simulation
 - b. Tutorial
15. a. Dan a computer student noticed that every time a person enters the computer lab the computer screen flickers. Identify three reasons why the monitor might be flickering (3 Marks)
- b. State two ways in which the problem can be solved (2 Marks)

SECTION B (60 MKS)

Answer question 16 (Compulsory) and any other THREE questions from this

Section.

16. To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safricom to Safaricom calls and calls to other networks. Calls to Safaricom networks will be charged according to the time of the day as listed below:
- -Between 8am to 12 noon – 6 Ksh
 - -Between 12 noon to 2pm -0.8 Kshs
 - -Between 6 to 1 am -4Kshs
 - -between 1 am t 8am - 1Kshs
- Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

Mr. Wasswa Bbaale a business man who makes both internal and international calls would like to make maximum use of this of this tariff.

a) Write a pseudo code that would show him know the charges of calls with an appropriate label when he the inputs type of call and the time where appropriate. Use a 24 hour clock. **(8mks)**

b) Design a flowchart for the pseudo code in 16(a) above **(7marks)**

17. a) Explain how an operating system controls I/O devices. **(2marks)**

b) Maintaining security is one of the functions the operating system. Explain how the operating system maintains security **(2marks)**

c) Distinguish between Indexed sequential and direct file organizations **(2marks)**

d) i) Using appropriate examples, differentiate between distributed and centralized processing modes **(3marks)**

ii) State one advantage and one disadvantage of distributed processing modes in 17(d) **(i)(2marks)**

e) i) With reference to an operating system, differentiate between formatting and partitioning. **(2marks)**

ii) List any **TWO** types of user interface. **(2mark)**

18.a) Using eight bits and twos complement, subtract 78_{10} from 17_{10} . Give your answer in decimal notation **(3marks)**

b) Convert 11011011111.1111_2 to:

i) Octal **(2marks)**

ii) Hexadecimal **(2marks)**

iii) Decimal **(2marks)**

c) State any **Two** methods used to gain illegal access to a computer system **(2marks)**

d) i) Distinguish between peer-to-peer and client –server LANs. **(2marks)**

ii) Atieno was very happy when she bought a Safaricom 2G modem for she was able to easily connect her computer to the Internet. After six months she noticed it was taking her too long to connect to the Internet. State two possible causes of the problem. **(2marks)**

19.a) i) Explain any **two** causes of system change. **(2marks)**

ii) Explain any **THREE** causes of system maintenance. **(2marks)**

b) i) Use of questionnaire is one of the most popular fact finding method. State any **TWO** advantages and **TWO** disadvantages of using this method to gather data. **(2marks)**

- ii) Explain the importance of requirement specification phase of Systems development. **(2mks)**
- c) Explain **TWO** reasons why a new system is tested before implementation. **(2marks)**
- d)i) State two duties performed by a system administrator. **(1mark)**
- ii) The principal of a school is attempting to convince his staff to use CAL and CAI software. State one benefit and one limitation of using such software. **(2marks)**
- e) State one advantage and one disadvantage of using expert systems in medicine **(2marks)**

20.a) Explain three types of communication links that may be used to get an Internet connection **(3marks)**

- b) Differentiate between the Internet and World Wide Web. **(2marks)**
- ii) Technology has been blamed for polluting the environment.

Explain how computer technology has contributed to this. **(2marks)**

- c) A Company that makes and sells vehicles receives orders from various clients. The company wants to enter their orders into a database. Study the table structure below and answer the questions that follow.

Field Name	Data Type	Field Size
Order Number	Number	Long Integer
Order Date	Date/Time	
Supply Date	Date/Time	
Product code	Text	5
Customer ID	Number	Long Integer
Delivery address	Text	30
Product Type	Text	15
Product Name	Text	10
Quantity Ordered	Number	Long integer
Product Price	Number	Long Integer

- i) Split the above structure into **THREE** tables and for each table identify an appropriate primary key. **(5marks)**
- ii) Design well labeled tables structures and identify foreign keys **(3marks)**

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 3**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS**Question One**

The following data is an extract of data obtained from Movers Transport company records. Study the data and answer the questions that follow.

AREA	PRODUCER ID	NAME	QUANTITY DELIVERED D (KG)	TOTAL COST	TRANSPORT COST	GROSS COST	DEDUCTION	NET PROFIT
101B	115	Selina Mwao	4562					
79A	145	Yvonne Kibet	1254					
79A	012	Dorothy Namulungu	235					
79A	561	Tiffany Wangui	8954					
101B	016	Asha Wangu	9658					
20Z	123	Ruth Mellanie	7895					
20Z	458	Afif Mumtaz	456					
101B	654	Pelah Wonder	421					
20Z	758	Christabel Simbauni	7895					

- Enter the data shown above into a spreadsheet giving it an appropriate title, center and bold across the worksheet. Save the workbook as WORK01. Rename the worksheet as Jan records
(10 Marks)
- Copy the data to a new worksheet and add the details of producer Valence Masitsa of area 101B, ID 452 with quantity of produce of 2,700kg in an appropriate row.
(1 Mark)
- Insert double borders around every cell and every row.
(2 Marks)
- Use a function to calculate the Total cost for the producer with ID number 115 given that the price per KG of the produce is Sh.41 .00
(2 Marks)
- Use the formula for Total cost obtained for producer Selina Mwao and use it to calculate the gross cost for all the farmers
(2 Marks)

- f) Use if function to calculate transport cost for all the producers given that transport is charged per Kg is as follows **(5 Marks)**

AREA	Price per kg
101B	5.00
20Z	3.50
79A	4.00

- g) Insert the value 20% in cell E14. Using absolute cell referencing calculate deductions, given that the deduction is 20% of the Total cost. **(4 Marks)**
- h) Using a function calculate the Net cost, given that Net cost is Gross cost minus deductions and gross cost is Total cost plus Transport cost **(4 Marks)**
- i) Format the columns containing currency values to currency with 2 decimal places and prefix Ksh. Rename the worksheet PRODUCE PAY. **(3 Marks)**
- j) Arrange the records in ascending order of the producer ID. **(2 Marks)**
- k) Copy the contents of worksheet Jan records to a new worksheet and rename it as Filtered. By applying suitable filter condition, display records for all producers except those from area 79A. **(4 Marks)**
- l) Use subtotals function to calculate subtotals for the quantity delivered, gross pay and net pay from each area. **(3 Marks)**
- m) Create an embedded pie chart showing the total quantity of produce delivered for each area .The chart should have the following details.
- i. Chart title: Area Total produce delivered
 - ii. Legend Position: Right
- Save it as CHART 1 **(5 Marks)**
- n) Print Jan records, Produce Pay and Filtered in landscape orientation. **(3 Marks)**

Question 2

You are part of a wedding committee of your friend and you have a vast knowledge of using a computer; you are tasked to be in charge of the wedding cards. Using a desktop publishing software, design the wedding card as it appears. Name the file as **W-Card**. **(24marks)**

(a) Prepare the page layout specifications as follows:

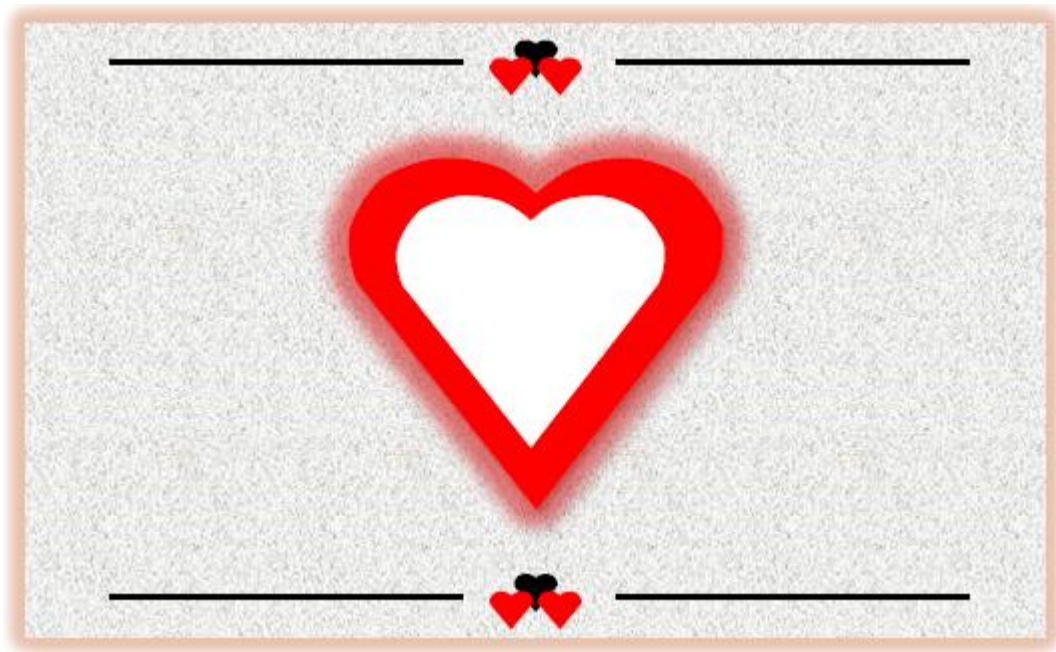
(i) Paper size: A4 portrait (2mks)

(ii) Grid guides (3mks)

- Column guides: 1
- Row guides: 2
- Spacing: 0.3"

(iii) Margins guides (2mks)

- Left and right: 0.24"
- Top and bottom: 0.25"



(b) Format the Outer heart shape in the middle part of the design to the following specifications:

(4marks)

- i. **Color:** Red
- ii. **Outline:** Light blue
- iii. **Height:** 2.64”
- iv. **Width:** 2.84”

(c) Perform the following formatting on the rectangle of the first part of the design.

- i. Apply an outline **shadow**. (1mark)
- ii. Background Texture fill - **Newsprint**. (2Marks)

iii. Add a glow (**Accent 1, 18pt glow**), glow size **25pts**, and **57% transparency**. (4marks)

(d) Change the paragraph text starting from “**Request the blessings...**” to color **cold** with line spacing of **0.75sp**. (2marks)

(e) Format the names of the bride and bridegroom to have a **strikethrough** and a **dotted underline**. (2marks)

(f) Group all objects in the design. (2marks)

(g) Insert a page header “**LOVE IS A GOOD THING**”. (1mark)

(h) Print the publication. (1mark)

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KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 4

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

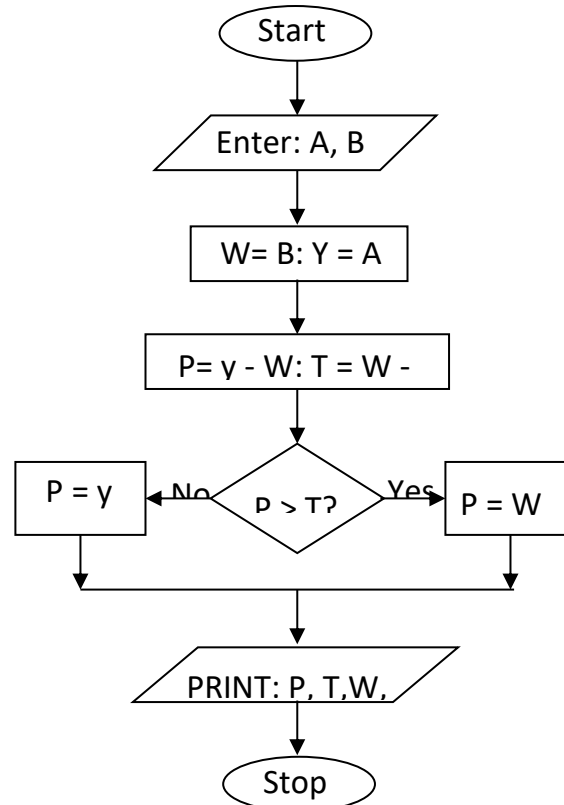
Answer All questions in this section

1. Give **two** reasons why smaller computers like Laptops tend to be more expensive than Desktop computers. (2 marks)
2. a). State **two** keyboard keys that work in a state of On/Off switches in operation (1 mark)
b). State **four** factors you would consider when choosing a secondary storage device (2 marks)
3. i) What is distributed data processing? (1 mark)
ii) Outline **two** advantages of distributed data processing in an organization (2marks)
4. Differentiate between graphic-based and layout based desktop publishing software. (2 marks)
5. (a) Write the following acronyms in full as used in operating systems.
(i) GUI (½ mark)
(ii) WIMP (½ mark)
(b) State **two** factors considered when choosing an operating system for use in a computer. (2 marks)
6. a) Define the term audit **trail** (1 mark)
b) List any **three** ways of recovering data lost through accidental erasure. (3marks)
7. State **three** functions of an email software. (3marks)
8. Name **two** responsibilities that are carried out by a computer programmer (2 marks)
9. State **three** ways in which ICT can improve the access of News in Kenya. (3marks)
10. Give **three** reasons why people prefer in-house developed application programs to general-purpose application packages. (3marks)
11. State any **two** negative impacts of ICT on the environment (2 marks)
12. Highlight **three** reasons why most network technicians prefer using command line operating systems to configure networking equipment. (3 marks)
13. A computer teacher wants to minimize illegal entry of people to a computer laboratory. Explain **three** measures which have to be put in place in order to curb this illegal entry. (3 marks)
14. Outline **two** benefits of mail merging. (2 marks)
15. Without proper marketing, a business cannot survive in a competitive environment hence computers are being used in a number of ways to enhance marketing. List any **two** ways of ensuring this is effected. (2 marks)

SECTION B: (60 MARKS)

Answer question 16 (compulsory) and any other **THREE** questions from this section.

16.(a) Study the flowchart **below** and answer the questions that follow.



- (i) State the name of the control structure shown in the flowchart. (1 mark)
- (ii) Assuming the user keys in 12 and 19 when prompted to enter the values for B and A respectively, determine the printed values of P, T, W and y. (4 marks)
- (iii) Write the pseudo code that would be used in place of the flowchart. (6 marks)
- (b) What is the difference between looping and selection? (2 marks)
- c) State any **two** advantages of low level languages. (2 marks)
- 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 (4 marks)
- b) Give **three** reasons why system maintenance phase is necessary in SDLC (3 marks)
- c) State **two** instances where observation is not a viable method of gathering information during system analysis stage (2 marks)

- d) Various considerations should be made during input and output design. State **two** considerations for each case (4 marks)
- e) List **two** sources of computer viruses (2 marks)

18.a) Use twos complement to perform the following arithmetic operations

- i) $15_{10} - 12_{10}$ (4marks)
- ii) $10111_2 - 1011_2$ (4marks)
- b) 1011_2 is a ones complement binary representation of a number using four bits work out the likely positive equivalent in base 10. (2marks)
- c) Convert the decimal fraction 10.375_{10} to its binary equivalent. (4marks)
- d) Assuming the existence of base six, list the numbers that would be used in the number system. (1mark)

- 19.a)** i) Write the acronym DBMS in full. (1mark)
- ii) State any **three** functions of a DBMS. (3marks)

b) Indicate the type of cell reference depicted by the following. (3marks)

- i) H5.....
- ii) H \$ 5.....
- iii) \$H\$5.....

- c) Mr. Maanzo is a teacher at Soyot High school and wishes to use Spreadsheet to process the marks obtained by his students during the term. The worksheet below shows the details used.

A	B	C	D	E	F	G	H	I
1	NAME	CAT-1	CAT-2	CATTOTAL	EXAM	TOTAL	GRADE	PST
				L				
2	Susan Muani	14	06		56			
3	Peter Kwena	13	08		34			
4	Mary Ann	10	04		59			
5	Paul Njeru	11	07		57			
6	Janet Frida	06	09		48			
7	Justin Gerard	08	07		50			

NB:CAT -1 and CAT -2 are out of 15 marks each and EXAM is out of 70 marks

(i) **Write** a function that displays “PASSED” when the total marks is >60 otherwise display “FAIL”. **(2marks)**

(ii) **Write** a function that assigns Paul P positions according to the total marks. **(2marks)**

d) Use illustrations to explain **two** text alignment features used in electronic word processors **(4 marks)**

20.a) Match the following statements with repeater, router or a bridge. **(2 marks)**

STATEMENT	DEVICE
Operates at data link layer	
Determine the best path for data to follow	
Regenerates signals	
Forwards everything which it doesn't recognize	

b) Discuss two disadvantages of wireless networks. **(4 marks)**

c) Write the following abbreviations in full. **(2 marks)**

i. F.T.P

ii. H.T.T.P

d) With the aid of a diagram, discuss Hybrid topology. **(3 marks)**

e) State **two** advantages of using fiber optic cables. **(2 marks)**

(d) Explain the meaning of the following terms as used in signal transmission. **(2 marks)**

i. Attenuation

ii. Noise

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KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 4**

451/2

COMPUTER STUDIES

PAPER 2 (PRACTICAL)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

Question One

The data in the tables below were extracted from Bondo Sub county Games Management system.

Table 1: TEAMS TABLE

Team Code	Team Name	Address	Tel. No.	Reg. Fee
01	Majiwa High School	Box 0012	021542148	5,000
02	Maranda High School	Box 2454	025485267	3,500
03	Usenge High School	Box 458	025478756	4,700
04	Akoko Mixed Secondary	Box 635	032547855	2,400
05	Kipasi Secondary School	Box 2446	032458754	1,200
06	Kapiyo Secondary School	Box 6589	015487564	1,400
07	Nyang'oma Boys	Box 1254	031204543	5,000

Table 2: RESULTS TABLE

Team Code	Games Won	Games Lost	Games Draw
01	12	2	2
02	10	3	3
03	4	8	3
04	9	3	4
05	7	3	5
06	7	6	4
07	5	9	2

- (a) Create a database named **Football** to store the data above. (12marks)
- (b) Format the *Reg. Fee* field as follows:
- (i) To display the entries with the prefix: "KSh."Correct to two decimal places. (2marks)
- (ii) Restrict entries to positive values only and should return an error message "*Error: enter positive values only*" if an out of range value is entered. (2marks)
- (c) Validate Team Code to 2 characters only. (2marks)
- (d) Create a suitable table relationship between the tables. (3marks)
- (e) Design a form for each table and use it to enter the data into the tables. (9marks)
- (f) Create a query named **TotalGamesQuery** to display the fields: Team Code, Team Name and Total games played. (4 marks)

- (g) Create a query to show the team name and total points. (**Note: A Win in a game earns team 3 points, a draw 1 point and a loss 0**). The query should show the 3 best teams based on the total points. Save the query as **BestTeamsQuery**. (5 marks)
- (h) Create a report named **RegReport** to display the Team Name, Address, Reg. Fee. The report should show the total registration fee collected from all teams. (5marks)
- (i) Sort the records to show the team that has paid the highest amount of registration fee first. (2 marks)
- (ii) Title the report as “*income from registration*”. (2 marks)
- (i) Print each of the following: (2marks)
- (i) Teams table and Results table
- (ii) TotalGamesQuery and BestTeamsQuery RegReport.

Question Two

- (a) Type the following passage using a word processing package and save as **Networking**. Answer the questions that follow. (25marks)

COMPUTER NETWORK

A Computer network is a group of computers and other devices connected together by a suitable media.

Advantages of computer Networks

1. Multiple users can communicate, exchange and share information
2. Resource sharing including program, data base, hardware etc. is possible



- By definition communications refers to the transfer of information from one place to another between two individuals using agreed symbols, signs or even human behavior such as nodding. Exchange of information relies on a communication system to convert, amplify and send signal through a common medium. Message, Sender, Medium and Receiver are

the essential components of communication systems. If a system is extended by cascading more communication systems, it is called networked systems.

- In case communication involves the sending of information over a significant distance, it must use telecommunications as an aid. By definition, telecommunications refers to the transmission of information between distant locations by some electromagnetic means.
- Data communications is defined as the interchange and processing of encoded (digital that is, 1s and 0s) information between distant locations using telecommunications.
- Data communications is regarded as the collection and distribution of the electronic representation of information which can be text, voice, graphics or image, from and to remote computing facilities. As information can only be carried to the remote site provided that the information carrier supports that particular type of data transmission, information may undergo data conversion processes if the nature of data signal is incompatible with the characteristics of the signal carrier.

Communication networks are usually defined by their size and complexity. We can distinguish four main types:

- **Local area networks (LAN).** ^{These networks} connect computer equipment and other terminals distributed in a localized area, e.g. a university campus, factory, office. The connection is usually a cable or fibre, and the extent of the cable defines the LAN.
- **Metropolitan area networks (MAN).** These networks are used to interconnect LANs that are spread around, say, a town or city. This kind of network is a high speed network using optical fibre connections.
- **Wide area networks (WAN).** These networks connect computers and other terminals over large distances. They often require multiple communication connections, including microwave radio links and satellite.

Classification of communication networks

COMPARISON AMONG DIFFERENT TOPOLOGIES

Below are the advantages and disadvantages of various LAN topologies.

Type	Advantage	Disadvantage
Star	Simple and easy to identify fault	Failure of central node causes disaster
Irregular (Mesh)	Immunity to bottleneck and failure problems	Expensive to provide an alternative routing
Bus	Simple to control traffic flow	Only a single communications channel is required to service all the nodes
Ring	Simple to implement	One channel is required to service all

TRANSMISSION MEDIA

Transmission can be by cable or wireless methods. There are 3 common types of cable:

- **Twisted pair,**
- **Co-axial**
- **Fiber optic.**

Wireless transmission includes:

- Microwave transmission.
- Satellite transmission.
- Radio waves transmission.
- Infrared transmission.

TWISTED PAIR

Consists of two insulated copper wires arranged in a regular spiral pattern to minimize the electromagnetic interference between adjacent pairs

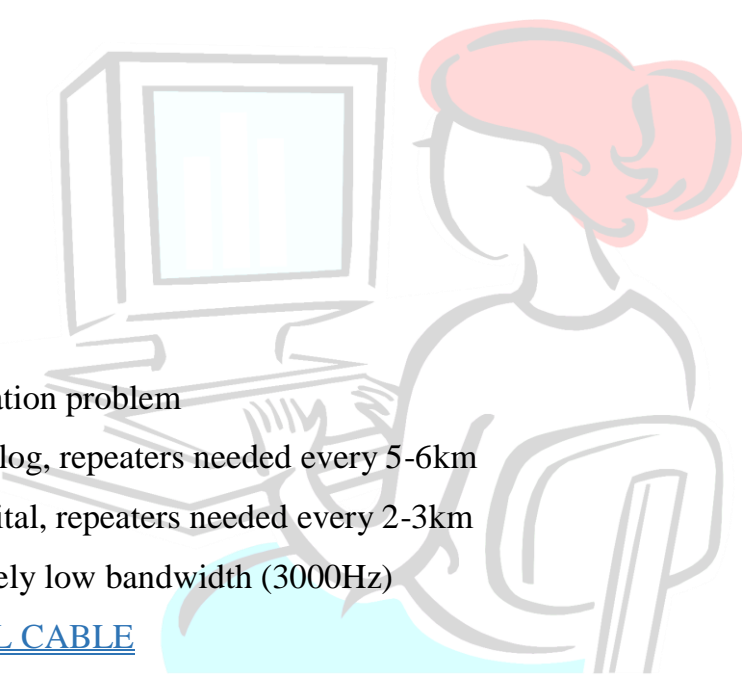
Often used at customer facilities and also over distances to carry voice as well as data communications.

TWISTED PAIR ADVANTAGES

- Inexpensive and readily available
- Flexible and lightweight
- Easy to work with and install

TWISTED PAIR DISADVANTAGES

- Susceptibility to interference and noise

- 
- Attenuation problem
 - For analog, repeaters needed every 5-6km
 - For digital, repeaters needed every 2-3km
 - Relatively low bandwidth (3000Hz)

CO-AXIAL CABLE

- Used for cable television, LANs, telephony
- Has an inner conductor surrounded by a braided mesh
- Both conductors share a common center axial, hence the term “co-axial”

CO-AXIAL ADVANTAGES

Higher bandwidth

- 400 to 600Mhz
- Up to 10,800 voice conversations
- Can be tapped easily (pros and cons)
- Much less susceptible to interference than twisted pair

CO-AXIAL DISADVANTAGES

- High attenuation rate makes it expensive over long distance
- Bulky
- Greater capacity (bandwidth of up to 2 Gbps)
- Smaller size and lighter weight
- Lower attenuation
- Immunity to environmental interference
- Highly secure due to tap difficulty and lack of signal radiation

FIBER OPTIC CABLE

- Relatively new transmission medium used by telephone companies in place of long-distance trunk lines
- Also used by private companies in implementing local data communications networks
- Require a light source with injection laser diode (ILD) or light-emitting diodes (LED)

ADVANTAGES OF FIBER OPTIC

- Greater capacity (bandwidth of up to 2 Gbps)
- Smaller size and lighter weight
- Lower attenuation
- Immunity to environmental interference
- Highly secure due to tap difficulty and lack of signal radiation

DISADVANTAGES OF FIBER OPTIC

- Expensive over short distance
- Requires highly skilled installers
- Adding additional nodes is difficult

(B) Required:

- (i) Open a new document then copy and paste the content of Networking on the new document

(2marks)

- (ii) Save the new document as **Networking Edited.**

(2marks)

- (iii) Change the title Computer Network as follows.

(4marks)

Alignment – Centre

Font Size – 23

Font colour - Red

Font type –Elephant

Kerning -12 point

Spacing –Expanded

Scale- 100%

Position- Raised

- (iv) Convert the paragraphs immediately under **Communications** into a hanging indent.(2marks)
- (v) Insert your name into the passage as a footer and Index number at the Header. (4 marks)
- (vi) Convert the paragraph under Classification **of communication networks** to two columns and justify them. (4 marks)
- (vii) Insert Water mark a cross the page the page “ **COMPUTER NETWORKING** “ (2marks)
- (viii) Change the Drop cap lines to two. (1mark)
- (ix) Insert page border using the following setting. (2marks)
 - Border – Shadow
 - Border – Three line
 - Colour - Orange
- (x) Print the document networking and Networking Edited. (2marks)

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KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 5

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

1. **State three** precautions that should be taken to prevent against electrical fire in the computer laboratory (3 marks)
2. **Identify** the most appropriate **input device** suitable for each of the following tasks:
 - i) Graphic designs and architectural drawing (1 mark)
 - ii) Data input by a person with impaired hands (1 mark)
3. Sharon has noticed that her stand-alone computer has become unusually slow and hanging frequently. Since she cannot figure out the problem with the computer, she decided to format the hard disk.
 - a) **State two** data recovery measures she has to take before formatting the hard disk (2 marks)
 - b) **State two** corrective measures she should have taken before resorting to formatting the hard disk (2 marks)
4. The capacity of a computer's RAM is 4GB
 - a) **State one** function of the RAM in the computer (1 mark)
 - b) **Calculate** the number of nibbles the memory can support if another RAM of 512MB RAM was added. (3 marks)
5. The independent Electoral and Boundaries Commission (IEBC) has decided to transmit election results from the constituency level to the headquarters in Nairobi through the internet. **Explain two** data security threats that are likely to be faced during this transmission. (4 marks)
6. The icons below represent commands used in a DTP package to manipulate graphics.



Figure A



Figure B

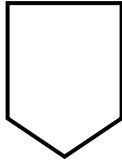
State the use of each of the icons labeled *Figure A* and *Figure B* (2 marks)

7. **Explain** the importance of each of the following in word processing
 - i) tab stops (2 marks)
 - ii) word wrap (2 marks)

8. State the use of each of the following symbols in a system flowchart:



a. (1 mark)



b.
(1 mark)

9. State two ways in which power failure is a threat to data security (2 marks)

10. Pesa Tele Company has realized that someone is illegally gaining access to their data in their computer networks. Name two computer professionals that the company should consult and their roles. (2 marks)

11. State two factors that determine the cost of an operating system (2 marks)

12. The examination processing system of Mamboleo high school requires entry of students' monthly CAT marks at the end of each month. At the end of the term, the system generates a student's termly report form.

a) Name this type of data processing mode (1 mark)

b) State two advantages of this data processing approach (2 marks)

13. An organization has offices in Nairobi and Kampala. The management intends to network the computers in these offices. State two factors that they need to consider when choosing a physical network topology to use. (2 marks)

14. Apart from sending and receiving mails, state other two functions of an email. (2 marks)

15. Distinguish between an *index key* and a *primary key* field as used in databases (2 marks)

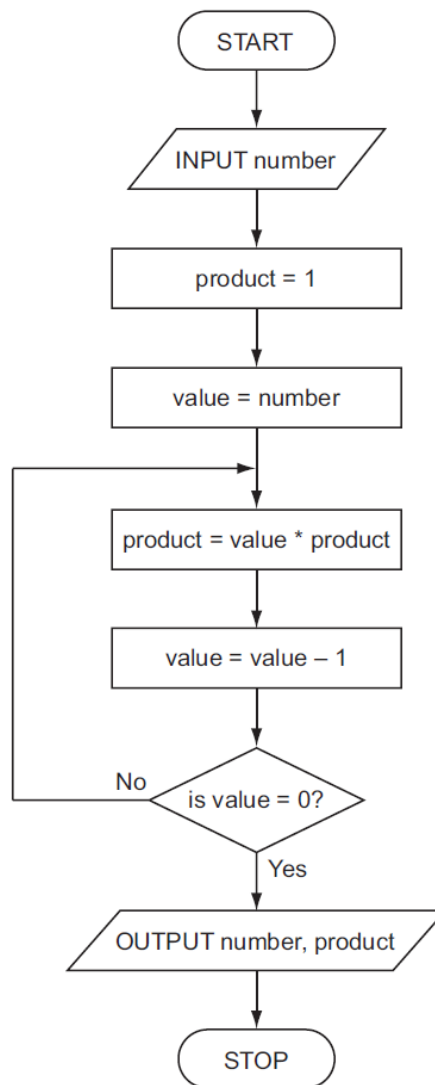
SECTION B (60 Marks)

Answer question 16 (Compulsory) and any other three questions

16. a) Using a suitable example, explain the term *mnemonics* as used in programming (2 marks)

b) An interpreter is a programming language translator that converts high level languages to machine code. State three characteristics of an interpreter (3 marks)

c) The figure below shows a flowchart. Use it to answer the questions that follow:



i) **Determine** all the outputs of the flowchart if the input is the number **three**. (3 marks)

ii) **Explain** what happens if the number zero is input. (1 mark)

iii) **Write** a pseudocode for the flowchart above (6 marks)

17.a) With an aid of a diagram, **describe** time sharing mode as used in data processing. (4 marks)

b) **Explain** the function of each of the following in system documentation:

i) User Manual (2 marks)

ii) Invalid data (2 marks)

c) **State two** functions that are specific to networking operating systems (2 marks)

d) Mwanzo mpya holding is a company that deals with selling of computers and computer parts.

State three benefits of advertising their business through the internet. (3 marks)

e) **Distinguish** between the *integrated software* and *software suite* (2 marks)

18.a) **Perform** the binary arithmetic

$$111.01 + 1011.111 - 101.011$$

And convert the answer to decimal notation

(4 marks)

b) Using two's complements and 8 bit notation, subtract 11_{10} from 8_{10} leaving your answer in binary notation

(5 marks)

c) The figure below is an extract of a spreadsheet showing what students had targeted to score and the actual score in a computer remedial class.

	A	B	C	D
1	NAME	TARGET SCORE	ACTUAL SCORE	PERFORMANCE FACTOR
2	Abdi	40	45	
3	Alex	30	65	
4	Ben	50	60	
5	Betty	30	20	
6	Bena	45	45	
7	Sheila	70	60	

A performance factor is obtained by subtracting the target score from the actual score and dividing the difference by the target score.

Using cell references, **write** a formula that would be entered in cell

i) D4 to compute the performance factor

(2 marks)

ii) E2 to display the statement '*More remedials*' if the performance factor is less than zero, 'Exempted' if the factor is greater than zero and '*optional remedials*' if otherwise. (4 marks)

19.a) Kenya Wildlife Service (KWS) is a government agency whose part of their responsibility is to conserve wildlife. **State three** ways they can use ICT to achieve their goal. (3 marks)

b) **State the role** of each of the following data communication devices:

i) Gateway

(1 mark)

ii) Brouter

(1 mark)

iii) Codec

(1 mark)

- c) **Explain two** circumstances under which phased changeover strategy would be preferred when implementing a new system. **(4 marks)**
- d) **State three** reasons why the fibre optic cable has become a very popular data communication media in most organizations today **(3 marks)**
- e) A local bank had its electronic money transfer system attacked by a computer criminal. In their meeting over the matter, the Board of Directors instructed the CEO not to report the matter to the law enforcement agencies but to deal with it internally. **State two** reasons why the board of directors took such a decision. **(2 marks)**
20. a) An architectural firm uses a computer system for designing building plans. **State three** advantages of using CAD software instead of DTP software to perform this function. **(3 marks)**
- b) **State three** reasons why it is necessary to create table relationships during database design **(3marks)**
- c) **Explain two** circumstances under which the use of robots may be preferred in manufacturing industries **(4 marks)**
- d) The growth of the internet has led to the rise of many social networking sites. **State three** negative impacts of these social networking services offered over the internet. **(3 marks)**
- e) A student was advised to use ergonomic keyboard while typing his project documentation. **State two** health problems that can be solved when the advice is taken. **(2 marks)**

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 5**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The following data was extracted from Applicants' file of HITECH COMPUTER COLLEGE.

Enter the data as it appears in a spreadsheet and save it as Hitech CC. [6marks]

	A	B	C	D	E	F	G	H	I
1	NAME	ADDRESS	TOWN	ENG	KISW	MATH	MEAN	POSITION	REMARK
2	Alma N.	400	Nairobi	75	60	80			
3	Otieno G.	320	Kisumu	55	50	40			
4	Nyambane T.	560	Kisii	70	60	50			
5	Simiyu S.	123	Bungoma	30	80	70			
6	Staicy C.	48	Eldoret	75	70	80			
7	Akora A.	603	Mombasa	40	30	50			
8	Natasha J.	802	Nyeri	65	75	70			
9	Amoit C.	23	Busia	80	50	70			

(a) Copy the contents of sheet1 to sheet2 and rename as *modified* [1 mark]

(b) On the sheet named *modified* perform the following:

(i) Insert two blank rows at the top of the worksheet. [1 Mark]

(ii) Enter the following title and subtitle in the blank rows respectively; HITECH COMPUTER COLLEGE and APPLICANTS FILE. [2 Marks]

(iii) Centre the title and subtitle across the columns that contain data. [2 Marks]

(iv) Using suitable functions and cell references only, compute:

- The mean for each student and format it to zero decimal place. [4 Marks]
- The position of each student. [2 Marks]
- The highest score for each subject. [2 Marks]

v) The college wishes to analyze the applicants' data in order to find those applicants who qualify for admission to pursue a course in IT. Generate the remarks based on the following conditions

Mean	Remark
70 and above	Successful
Between 50 and 69	Retake
Less than 50	Unsuccessful

Enter an appropriate function in cell I4 and copy it to other cells to determine whether the student qualifies for admission. [7 Marks]

- (vi) Enter the label “Number of Successful Candidates” in cell A13. Using a suitable function, determine the number of applicants who are successful. The output should be displayed in cell B13. **[3 Marks]**
- (c) Copy the contents in *modified* sheet to a new worksheet and rename it as *filtered list* **[3 Marks]**
- (d) Filter the new sheet (*filtered list*) to display the records of those applicants who are successful. **[4 Marks]**
- (e) Copy the filtered list into a new worksheet and rename it as *successful applicants* **[1 mark]**
- (f) Delete the rows with the title “HITECH COMPUTER COLLEGE” and “APPLICANTS FILE”.
Save changes made in the worksheet. **[2marks]**
- (g) The college wishes to send admission letters to the successful applicants. Using a Word processor, type the following letter as it appears and save it as **Admission letter1**. **[4Marks]**

(Type today’s date here)

<<NAME>>

<<ADDRESS>>

<<TOWN>>

Dear <<NAME>>,

RE: INVITATION TO PURSUE A COURSE IN IT

We are pleased to inform you that your application to pursue an IT course has been successful.

You are required to report on 2nd October, 2023 at 8.00 a.m. Other details will be given to you on your reporting day.

Yours faithfully,



Douglas Mayaka,

CHIEF PRINCIPAL

(h) Merge the admission letter in (g) above with the ‘*Successful Applicants*’ Sheet you created in a spread sheet in (e) above to generate personalized letters to the successful applicants. Save as **Admission letter2**. [4 Marks]

(i) Print: [2 Marks]

- I. Sheet1;
- II. Successful Applicants Sheet;
- III. Admission letter1;
- IV. Any one successful applicant’s admission letter in Admission letter2.

2. The figure below shows the design of a book cover. It shows the front the front, the back and space between where book pages will be folded. Use a desktop package to design the book cover as follows:

a) Create a new publication named graphics book cover with the following page layout **(4marks)**

- i. Page size : A4
- ii. Orientation : landscape
- iii. Margins 1.27 cm or 0.5 inches all round

b) Enter the text and objects and format them as they appear in the Figure. The front and back sections of the book cover each measure 18 cm (7.1 inches) by 12.5 cm (4.9 inches) and the space between them measures 1.7 cm (0.7inches). **(45marks)**

c) Save and print the publication **(1mark)**

Course Objectives

- Define and trace the development of Graphic Design
- Identify the numerous design careers which are available
- Identify and use the Elements and Principles of Design in a decisive fashion
- Distinguish between the types of graphic images used
- Understand and use color to communicate ideas to others
- Understand the principles of graphic placement
- Utilize Adobe Photoshop to edit

Level	Duration	Fees
Certificate	3 months	Ksh
Diploma	1 Year	Ksh..
Degree	2 Years	Ksh.



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 Book Of Graphics Design Pixel24

Graphics

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GRAPHICS

Dhaka 1212

KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 6

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A*Answer All questions in this section*

1. State two reasons for the increased use of Laptop computers in modern workplaces (2marks)
2. What precautions would you take in the computer laboratory incase users are complaining of overheating and suffocation. (2marks)
3. Convert the decimal number 15.373_{10} to its binary number system equivalent. (3marks)
4. With an aid of a diagram describe the difference between Repeat Until and While... Do (3marks)
5. State three circumstances which may force an individual to acquire an impact printer instead of non-impact printer. (3marks)
6. Sam prepared a five-page brochure of Maseno School using Ms-publisher. He wanted to insert a school badge in each page of the publication. State two methods he need to apply to execute this task. (2marks)
7. State the difference between ones complement and twos complement (2marks)
8. Explain the impact of Information Technology on organization in each of the following areas. (2 marks)
 - (a) Competition.
 - (b) Pace of growth.
9. State four benefits of cloud storage in computing. (4marks)
10. Describe the functions of the following disk management operations.
 - (a) Defragmentation (1mark)
 - (b) Partitioning (1mark)
11. Describe four ways through which an organization can minimize threats to it data integrity. (4marks)
12. Study the following three sections of code and name accordingly (3marks)

10101010110	MOV AL, 10	 Chemistry
01010101010	MOV DL, 25	Biology
01000010101	MUL DL	Physics
10100010110		

 - (a)
 - (b)
 - (c)

13. Identify how the operating system will label the following drives in case a computer has one floppy drive, one hard disk partition into two and a DVD. (3marks)
14. Five students Jane, Beryl, Baroness, Linda, and Jael scored the following marks in mathematics: 45, 76, 34, 65 and 45. The marks were recorded in cell C3 to C7. Write down the most appropriate function that can be used to give those positions so that they can be awarded in descending order. (3marks)
15. Match the following statements with repeater, router or a bridge. (2 marks)

	STATEMENT	DEVICE
(a)	Operates at data link layer	
(b)	Determine the best path for data to follow	
(c)	Regenerates signals	
(d)	Forwards everything which it doesn't recognize	

SECTION B: 60 MARKS**ANSWER QUESTION NUMBER 16 ANY OTHER THREE QUESTIONS FROM THIS****SECTION****16.**

- (i) Define the following terms as used in programming. (3marks)
- (b) Machine dependent
 - (c) Bug
 - (d) Syntax
- (ii) Give two reasons to justify why most programmers prefer using compilers instead of interpreters. (2marks)
- (iii) Describe two limitations of machine language. (2marks)

(iv) Study the pseudo code below and design its equivalent flowchart (**8marks**)

Start

Count=1

For count =1 to 5 Do

Get Value 1 and Value 2

If Value 1 > Value2 Then

Maximum =Value1

Else

Maximum =Value2

Endif

Display Maximum

Count=Count+1

Stop

17.

(i) The five-bit number 00101 is used to represent decimal number 5, show three methods of coding for negative 5. (**3marks**)

(ii) Convert the binary number 101011110101101110001_2 into its

(a) Octal equivalent (**2marks**)

(b) Hexadecimal (**2marks**)

(iii) Convert 10101.010101_2 to decimal (**3marks**)

(iv) Use 8-bit twos to subtract 35_{10} from 17_{10} (**3marks**)

(v) Perform the following calculation (**2marks**)

$110001_2 + 1111_2 - 1111_2$

18.

(i) Define the term desktop publishing. (**2marks**)

(ii) List three nonprinting guides used in Desktop publishing (**3marks**)

(iii) Explain the following features as used in DTP when manipulating graphical objects.

(a) Fill (**1mark**)

(b) Stroke (**1mark**)

(vi) Describe any three types of action queries. **(3marks)**

(iv) Describe the function of the following features of a query grid.

(a) Criteria **(1mark)**

(b) Show **(1mark)**

(v) Mention three functions of database management software. **(3marks)**

19.

(i) State three causes of system entropy. **(3marks)**

(ii) Describe three main ways of maintaining a computer-based system. **(3marks)**

(iii) State three advantages of using pilot changeover strategy in system development **(3marks)**

(iv) State a stage in system development life cycle where each of the following activities are carried out.

(a) Identifying shortcomings of the system **(1mark)**

(b) Prepare training manuals **(1mark)**

(c) Calculating the cost benefit analysis **(1mark)**

(v) State three outcomes that may result from using incorrect requirement specifications during system development. **(3marks)**

20.

(a) Define the following terms.

(i) Downloading **(1mark)**

(ii) Uploading **(1mark)**

(iii) Blog **(1mark)**

(b) Briefly describe how internet platform have revolutionized business operations in the 21st century. **(3marks)**

(c) Mention three emerging issues that make many people have a negative perception about internet. **(3marks)**

(d) Explain the following terms as used in data processing.

(i) Multiprocessing **(1mark)**

(ii) Batch processing **(1mark)**

(e) Explain the following types of errors.

(i) Overflow error **(1mark)**

(ii) Truncation error **(1mark)**

(f) Mention two application areas of real processing **(2mark)**

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 6**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....


INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The table in Figure 1 below was captured from a Nia Safi Investments spreadsheet.

	A	B	C	D	E	F
1	 Nia Safi Investments					
2	<i>Overtime calculations for the month of June</i>					
3	Date	Name	Hours Worked	Day of Week	Rate	Amount
4	01-Jun-2023	Albert	4	Thursday		
5	03-Jun-2023	Albert	3	Saturday		
6	05-Jun-2023	Albert	1	Monday		
7	07-Jun-2023	Albert	4	Wednesday		
8	09-Jun-2023	Bernard	4	Friday		
9	11-Jun-2023	Caroline	5	Sunday		
10	13-Jun-2023	Albert	2	Tuesday		
11	15-Jun-2023	Albert	4	Thursday		
12	17-Jun-2023	Carl	3	Saturday		
13	19-Jun-2023	Lewis	4	Monday		
14	21-Jun-2023	Lewis	2	Wednesday		
15	23-Jun-2023	Bernard	2	Friday		
16	25-Jun-2023	Bernard	4	Sunday		
17	27-Jun-2023	Caroline	3	Tuesday		
18	29-Jun-2023	Bernard	1	Thursday		
19	01-Jul-2023	Caroline	4	Saturday		
20	03-Jul-2023	Bernard	1	Monday		

(a) In a new Spreadsheet, enter the information exactly as it appears and save your work as **NSI-**

Task1.

(11 marks)

(b) Enter the table in **Figure 2** below from cell **A23** in the same spreadsheet.

(3 marks)

Rates Of Pay	
<i>Day of the Week</i>	<i>Rate (Ksh)</i>
Saturday	150.00
Sunday	200.00
Any other Day	100.00

(c) Using the information in **Figure 2** and appropriate cell addresses, type a formula in **E4** which you will copy downwards to obtain all the rates of pay in respective cells.

(6 marks)

- (d) Copy the formula in part (c) above to obtain all rates of pay. (2 marks)
- (e) Using an appropriate Function, work out the Amounts considering that

$$\text{Amount} = \text{Hours Worked} \times \text{Rate}.$$
 (4 marks)
- (f) Rename the used spreadsheet as '*Calculations*'. (1 mark)
- (g) Save the work done so far as **NSI-Task2**. (1 mark)
- (h) Create a duplicate copy of Calculations sheet, hence rename the copy as '*Subtotals*'. (2 marks)
- (i) Using the data Subtotaling feature, work out the totals paid to every worker within the period. (3 marks)
- (j) Create another copy of Calculations Sheet as rename it as '*Attendance*'. (2 marks)
- (k) Replace the information in table from A23 to appear as follows: (2 marks)

Attendance Register	
<i>Employee</i>	<i>Times Attended</i>
Albert	
Bernard	
Caroline	
Carl	
Lewis	

Figure 1

- (l) Using an appropriate function count the *Times Attended* by each of the employees into the table in Figure 3 above. (3 marks)
- (m) Use a 3-D pie chart to represent the data in Figure 3 above. Apply the following settings: (5 marks)
- Title: *Times Attended Chart*
 - Legend: *Placed at the bottom*
 - Labels: *Both Percentages & Values*
 - Location: *As a New Sheet named **Pie-Chart***.
- (n) Save the final work as **NSI-Task3**. (1 mark)
- (o) In **NSI-Task3**, ensure that every worksheet has a header bearing your name, admission number and class. (2 marks)
- (p) From **NSI-Task3**, print the **Calculations, Attendance, Subtotals and Pie-Chart** (2 marks)

2. (a) Use a DTP software to design the following publication as it is with the following settings:

- (i) paper size = **A4**
- (ii) orientation = **Landscape**
- (iii) page margins = **0.25** inches all around

(i) Guides: Column 1 Width = 5.2”
 Space between Columns = 0.75”
 Column 2 Width = 5.2”

(ii) File name = **ExcellenceBook** (6 marks)

(b) Design the publication as it appears on the following page on the page you have created and fit all the items within the page. (38 marks)

(c) Insert your name and admission number as header, then your class and page number as footer. (4 marks)

(d) Print the publication. (2 marks)



KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 7

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

1. Suggest **two** disadvantages of a notebook computer when compared with a desktop Computer. (2 marks)
2. (a) What is a software suite? (1 mark)
(b) Suggest **two** advantages of using a software suite. (2 marks)
3. (a) Explain the two major types of software. (2 marks)
(b) Give an example of each of the above (2 Marks)
4. (a) Explain the term Process Control. (1 Mark)
(b) State two areas where process control is used in industry (2 Marks)
5. (a) Give **one** advantage of serial connection over parallel connection. (1 mark)
(b) Give **one** advantage of parallel connection over serial connection. (1 mark)
6. (a) Explain the term pipelining as used in CPU (1 mark)
(b) Explain How parallel processing work (1 mark)
7. Give **two** advantages and **two** disadvantages of display devices (e.g., monitors). (4 marks)
Advantages:
Disadvantages:
8. (a) Explain briefly why increasing the main memory may improve the performance (e.g., speed) of a computer system. (1 mark)
(b) Explain the term memory address as used in primary memory (1 mark)
9. Explain the following as used in word processing (3 Marks)
 - i. Spell-check
 - ii. Thesaurus
 - iii. Macros:
10. Explain the following spreadsheet concepts:
 - i. Automatic Recalculation. (1 mark)
 - ii. What if analysis (1 mark)
11. Suggest **two** advantages of using presentation graphics software over the traditional chalk-and-talk approach in a school environment (2 marks)

12. (a) Explain the term workstation as used in a networked environment (1 mark)
(b) What is a server? (1 mark)
13. (a) Explain briefly **identification** and **authentication** in computer access control. (2 marks)
(b) What is a personal identification number (PIN)? (1 mark)
14. (a) Explain the term ergonomics. (1 mark)
(b) Suggest **two** possible causes of eyestrain when using computers. (2 marks)
15. State **Three** benefits of telecommuting. (3 marks)

SECTION B

Answer question 16 (compulsory) and any other three questions from this section

16. (a)(i) State and describe three types of error that can occur in programming: (3 Marks)
(ii) When is a programming language considered structured? (2 marks)
- (b)(i) The Global Science Museum is not large and can become over-crowded when more than 300 people are in the building. They would like a program that will stop visitors from entering when more than 300 visitors are in the building.
- Design a Pseudo code segment for this problem using a REPEAT loop. You do not have to worry about visitors who leave the building, just those who have entered. (3 Marks)
- (ii) Identify **Three** aspects of a good HCI? (3 Marks)
- (c)(i) Give **one** advantage of compilers over interpreters (1 mark)
(ii) Give **one** advantage of interpreters over compilers (1 mark)
(iii) Explain briefly why the source codes must be translated again if the programmer wants to use the program on a computer with a different platform. (1 mark)
- (iv). Explain why a programmer may prefer to write code for device drivers using low level languages. (1 Mark)
17. (a) (i) With the aid of examples, explain number complements in the Binary number systems (2 marks)
(ii) Outline the benefits of using binary number complementation in computers. (2 marks)
- (b) (i) Why is binary number system best suited for use in computers? (2 marks)
(ii) Convert the following base two number into base ten. (2 marks)
- 11.01
- (iii) Convert the following base sixteen number into base two. (2 marks)

DEF=

(c) Carry out the following binary arithmetic:

(i) $11 + 10$ (1 mark)(ii) $1010.011_2 - 11.0111_2$ (2 mark)(iv) $101 - 11$ (1 mark)**18.** Describe briefly the three data processing **modes** (3 marks)**i.** Batching Processing Mode**ii.** *Real-time Processing Mode***iii.** *Interactive Processing Mode*(b)(i) Suggest **two** possible reasons for data preparation errors. (2 marks)(ii) Suggest **two** possible reasons for data input errors. (2 marks)(c) (i) Distinguish between **data validation** and **data verification**. (1 mark)(ii) Give **two** examples of data verification techniques. (2 marks)

(d) Describe briefly the following data validation techniques

i. Presence Check (1 mark)**ii.** Type Check (1 mark)**iii.** Range Check (1 mark)**iv.** Control Total Check (1 mark)**v.** Parity Checks (1 mark)**19.** (a) (i) Explain the term search **engine** (1 mark)(ii) Peter and Mary use the same keyword to search for information. Suggest **two** reasons why their search results may vary. (2 marks)(iii) State **one** disadvantage of using an e-mail account provided by the Internet service provider (ISP). (1 mark)

(b) (i) Explain the term URL (1 mark)

(ii) For the URL **<http://www.csklsc.net/pe/calendar.htm>**,***http*** stands for (1 mark)

The domain name is (1 mark)

The top-level domain (TLD) is (1 mark)

pe stands for (1 mark)

(c) (i) Explain the term communication protocol (1 mark)

(ii) Explain the following types of communication protocol

Ethernet (1 mark)

Token Ring (1 mark)

TCP/IP (1 mark)

(iii) Give **Two** examples of wireless-based communications channels. (2 marks)

20. (a). Describe the role of the systems analyst. (2 Marks)

(b). Describe Two techniques used by the systems analyst in requirements elicitation. (2 Marks)

(c) What is a requirements specification and what does it contain? (5 Marks)

(d) Software development is often said to be an *iterative process*.

Describe Two events that might spark an iterative process in software development. (2 Marks)

(e) (i) Describe briefly the **three** basic e-commerce models. (3 Marks)

(ii) Apart from parental control, state **one** other ways of Internet censorship. (1 mark)

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 7**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

QUESTION ONE



What Is Artificial Intelligence?

Artificial Intelligence is the field of developing computers and robots that are capable of behaving in ways that both mimic and go beyond human capabilities. AI-enabled programs can analyze and contextualize data to provide information or automatically trigger actions without human interference.

What Is Machine Learning?

Machine learning is a pathway to artificial intelligence. This subcategory of AI uses algorithms to automatically learn insights and recognize patterns from data, applying that learning to make increasingly better decisions.

By studying and experimenting with machine learning, programmers test the limits of how much they can improve the perception, cognition, and action of a computer system.

Deep learning, an advanced method of machine learning, goes a step further. Deep learning models use large neural networks — networks that function like a human brain to logically analyze data — to learn complex patterns and make predictions independent of human input.

How Companies Use AI and Machine Learning

To be successful in nearly any industry, organizations must be able to transform their data into actionable insight. Artificial Intelligence and machine learning give organizations the advantage of automating a variety of manual processes involving data and decision making. Some expressions including basic numbers like squares of numbers e.g 23^2 and base value of numbers like $H4C_{16}$ can be processed.

By incorporating AI and machine learning into their systems and strategic plans, leaders can understand and act on data-driven insights with greater speed and efficiency. The table below shows the company's per country that have implemented AI and machine language and the expected growth rate in five years time.

Country	NO. of AI machines	% growth	Increment per year
Kenya	50	5%	
Uganda	45	4.5%	
Tanzania	48	3%	
Zimbabwe	30	3%	
somalia	25	2%	

a) Using a word processor application, create the above document as it appears and save it as

KASU 1 exam

13 marks

b) Insert the AutoShape as it appears

2 marks

c) Spell check your document

1 mark

d) Copy the above document into a new word document and save it as **Kasu Final exam**

3 marks

e) Format all the titles in the document as follows:

i. Font type Aerial

1 mark

ii. Font size 14.5

1 mark

iii. Font colour Black, text 1

1 mark

iv. Double underline

1 mark

v. Bold italic

1 mark

vi. Character spacing Expanded 150%

2 marks

f) .Insert a dropped drop cap to 2 lines in the first paragraph starting with the word “artificial intelligence” and in margin drop cap to 2 lines in the second paragraph starting with the word “machine learning”

2 marks

g) Find the abbreviation AI and replace it with artificial intelligence

2 marks

h) Insert two columns in the 2nd last paragraph starting with “to be successful” with a line in between them

2 marks

i) Format the titles in the table as follows:

i. Centre align all the titles

1 mark

- ii. Change the text direction of the titles on the table to 90⁰ **1 mark**
- iii. Double strike through **1 mark**
- iv. Bold **1 mark**
- j) Enter a formular to get the yearly increament for Kenya **2 marks**
- k) Enter a formula to calculate the total NO. of AI machines in the five countries above **2 marks**
- l) Insert a row above row one, merge all the cells and enter an appropriate title for the table **3 marks**
- m) Insert the header of your document as © **your name** and footer as your **class and admission number** **2 marks**
- n) Insert a caption with the title Artificial intelligence in East Africa **2 marks**
- o) Print KASU1 exam and Kasu Final exam **2 mark**

QUESTION TWO

The table below shows a soccer league at the end of the season. The league comprises of 15 teams and each played 29 matches to close the season. Using a spread sheet program, represent the data and answer the questions below:

TEAM	COUNTY	MATCHES PLAYED	MATCHES WON	MATCHES DRAWN	MATCHES LOST	POINTS	TEAM POSITION	TEAM AWARDS
SHIRA FC	NORTHERN	29	1	1				
SATIMA FC	SOUTHERN	29		2				
NANGA FC	EASTERN	29	1					
LOGAN FC	NORTHERN	29		1				
KILIMANJARO	EASTERN	29	1	1				
KILIMAMBORO	WESTERN	29	2					
KARISIMBI	WESTERN	29		1				

KAMET UNITED	WEST	2		2				
GESSI	SOUTH	2	1					
FUJI FC	SOUTH	2	1					
EVEREST AC	EAST	2	1					
EMIN FC	EAST	2						
ELGON	EAST	2	2					
BROAD PEAK	WEST	2	2					
ATLAS UNITED	WEST	2	1					

- a. Create a workbook called **LEAGUE_RESULTS** (1 Mark)
- b. Using a customised **INPUT FORM**, enter the following data into a worksheet and format it exactly as it appears. (10 Marks)
- c. Set data validation criteria to ensure that matches won, drawn or lost do not exceed 29. A message **"INCORRECT!"** should be displayed in case the validation rule is violated.(4 Marks)
- d. d. Rename the worksheet as **LeagueTable** (2 Marks)
- e. Given that the total number of games played by each team in the season is 29, determine the number of games lost by each team. (2 Marks)
- f. f. Calculate the points obtained by each team during the season given that: - (3 Marks)

Results	Points
Win	3
Draw	1
Loss	0

- g. Determine each team's position in the league given that the team with the highest number of points becomes the first position in the league. (4 Marks)
- h. Determine the number of teams that garnered above 55 points in the league. Label the cell appropriately. (3 Marks)

- i. Given that teams get cash awards based on their positions according to the table below.

Apply an appropriate formula to determine the team awards.

(4 Marks)

Team Position	Team Award
1	\$ 1,000,000
2	\$ 500,000
3	\$ 250,000
4	\$ 125,000
Others	\$ 0

- j. Sort the data in ascending order by *Team Position*. (1 Mark)
- k. Copy the worksheet *LeagueTable* to a new worksheet and rename it as *CountyTeams* (1 Mark)
- l. Using *SubTotals* function in *CountyTeams* worksheet, determine the Average Points of all the teams in each county (5 Marks)
- m. Using worksheet *LeagueTable* plot a column graph on its own worksheet renamed as *LeagueAnalysis* showing the TeamName and TeamPoints only. (7 Marks)
- n. Print the following: (3 Marks)
- Formulas only in *LeagueTable* worksheet
 - CountyTeams* worksheet
 - LeagueAnalysis* worksheet

KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 8

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

1. Suggest **two** disadvantages of a notebook computer when compared with a desktop Computer. (2 marks)
2. (a) What is a software suite? (1 mark)
(b) Suggest **two** advantages of using a software suite. (2 marks)
3. (a) Explain the two major types of software. (2 marks)
(b) Give an example of each of the above (2 Marks)
4. (a) Explain the term Process Control. (1 Mark)
(b) State two areas where process control is used in industry (2 Marks)
5. (a) Give **one** advantage of serial connection over parallel connection. (1 mark)
(b) Give **one** advantage of parallel connection over serial connection. (1 mark)
6. (a) Explain the term pipelining as used in CPU (1 mark)
(b) Explain How parallel processing work (1 mark)
7. Give **two** advantages and **two** disadvantages of display devices (e.g., monitors). (4 marks)
Advantages:
Disadvantages:
8. (a) Explain briefly why increasing the main memory may improve the performance (e.g., speed) of a computer system. (1 mark)
(b) Explain the term memory address as used in primary memory (1 mark)
9. Explain the following as used in word processing (3 Marks)
 - i. Spell-check
 - ii. Thesaurus
 - iii. Macros:
10. Explain the following spreadsheet concepts:
 - i. Automatic Recalculation. (1 mark)
 - ii. What if analysis (1 mark)
11. Suggest **two** advantages of using presentation graphics software over the traditional chalk-and-talk approach in a school environment (2 marks)
12. (a) Explain the term workstation as used in a networked environment (1 mark)
(b) What is a server? (1 mark)

13. (a) Explain briefly **identification** and **authentication** in computer access control. (2 marks)
- (b) What is a personal identification number (PIN)? (1 mark)
14. (a) Explain the term ergonomics. (1 mark)
- (b) Suggest **two** possible causes of eyestrain due to prolonged use of computers. (2 marks)
15. State **Three** benefits of telecommuting. (3 marks)

SECTION B

Answer question 16 (compulsory) and any other three questions from this section

16. (a)(i) State and describe three types of error that can occur in programming: (3 Marks)
- (ii) When is a programming language considered structured? (2 marks)
- (b)(i) The Global Science Museum is not large and can become over-crowded when more than 300 people are in the building. They would like a program that will stop visitors from entering when more than 300 visitors are in the building.
- Design a Pseudocode segment for this problem using a REPEAT loop. You do not have to worry about visitors who leave the building, just those who have entered. (3 Marks)
- (ii) Identify **Three** aspects of a good HCI? . (3 Marks)
- (c)(i) Give **one** advantage of compilers over interpreters (1 mark)
- (ii) Give **one** advantage of interpreters over compilers (1 mark)
- (iii) Explain briefly why the source codes must be translated again if the programmer wants to use the program on a computer with a different platform. (1 mark)
- (iv). Explain why a programmer may prefer to write code for device drivers using low level languages. (1 Mark)
17. (a) (i) With the aid of examples, explain number complements in the Binary number systems (2 marks)
- (ii) Outline the benefits of using binary number complementation in computers. (2 marks)
- (b) (i) Why is binary number system best suited for use in computers? (2 marks)
- (ii) Convert the following base two number into base ten. (2 marks)
- 11.01
- (iii) Convert the following base sixteen number into base two. (2 marks)

DEF=

(c) Carry out the following binary arithmetic:

(i) $11 + 10$ (1 mark)

(ii) 101×11 (1 mark)

(iii) 101_{11} (1 mark)

(iv) $101 - 11$ (1 mark)

18. Describe briefly the three data processing modes (3 marks)

i. Batching Processing Mode

ii. Real-time Processing Mode

iii. Interactive Processing Mode

(b)(i) Suggest **two** possible reasons for data preparation errors. (2 marks)

(ii) Suggest **two** possible reasons for data input errors. (2 marks)

(c) (i) Distinguish between **data validation** and **data verification**. (1 mark)

(ii) Give **two** examples of data verification techniques. (2 marks)

(d) Describe briefly the following data validation techniques

vi. Presence Check (1 mark)

vii. Type Check (1 mark)

viii. Range Check (1 mark)

ix. Control Total Check (1 mark)

x. Parity Checks (1 mark)

19. (a) (i) Explain the term search engine (1 mark)

(ii) Peter and Mary use the same keyword to search for information. Suggest **two** reasons why their search results are different. (2 marks)

(iii) State **one** disadvantage of using an e-mail account provided by the Internet service provider (ISP). (1 mark)

(b) (i) Explain the term URL (1 mark)

(ii) For the URL <http://www.csklsc.net/pe/calendar.htm>,
http stands for (1 mark)

The domain name is (1 mark)

The top-level domain (TLD) is (1 mark)

pe stands for (1 mark)

(c) (i) Explain the term communication protocol (1 mark)

(ii) Explain the following types of communication protocol

Ethernet (1 mark)

Token Ring (1 mark)

TCP/IP (1 mark)

(iii) Give **Two** examples of wireless-based communications channels. (2 marks)

20. (a). Describe the role of the systems analyst. (2 Marks)

(b). Describe Two techniques used by the systems analyst in requirements elicitation. (2 Marks)

(c) What is a requirements specification and what does it contain? (5 Marks)

(d) Software development is often said to be an *iterative process*.

Describe Two events that might spark an iterative process in software development. (2 Marks)

(e) (i) Describe briefly the **three** basic e-commerce models. (3 Marks)

(ii) Apart from parental control, state **one** other ways of Internet censorship. (1 mark)

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 8**

451/2

COMPUTER STUDIES

PAPER 2 (PRACTICAL)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The Management of a company owning a chain of hotels intend to use a spreadsheet program to compute the revenues in thousands of Kenya Shillings for the hotels during the 1st, 2nd, 3rd and 4th quarters. The hotels are rated as 2 star, 3star, 4 star and 5 star. **Figure 1** below shows an extract of the worksheet.

HOTEL	STAR CATEGORY	1ST	2ND	3RD	4TH	TOTAL REVENUE		
City Inn	4	174,400	177,400	127,900	180,800			
Forkland	2	173,700	111,300	194,900	103,700			
Highway	4	182,900	136,300	143,900	144,600			
Hiltop	5	188,500	124,700	173,500	171,200			
Membley	5	187,800	118,700	115,900	195,500			
Voyager	3	139,100	178,400	109,600	179,700			
Eden	2	200,000	112,200	109,100	117,200			
Palm	4	169,800	163,000	173,000	148,300			
The Shaza	5	163,900	106,800	107,100	150,500			
Total Quaterly Revenue								
Administrative cost								
Percentage 30%								

- (i) Open a spreadsheet program and create the worksheet extract as it appears in Figure 1. Save the workbook as **Task 1(11 marks)**
- (j) Use a function and cell addresses to calculate:
- (iii) Total revenue for each quarter; **(2 mark)**
- (iv) Total revenue for each hotel. **(2 marks)**
- (k) (i) Insert two rows above row I and type the title "MBALAMBALA GROCE HOTELS" in cell A1 **(2 marks)**
- (ii) Merge the cells in the range A1 I. **(1 mark)**
- (iii) Apply bold and font size 15 to the title. **(1 mark)**
- (l) Using cell addresses only, compute the administrative cost for each quarter given that the cost is a percentage of total revenue and the percentage rate IS In cell B18. **(34)**
- (m) Apply thick outside borders and regular inside borders to cells in the range A3:
- (n) (i) Copy all the contents of the current worksheet to a new worksheet. **(2 marks)**

(ii) Rename the old worksheet as original and the new worksheet as formatted **(2 marks)**

(o) (i) Change the page layout orientation of the formatted worksheet to landscape and the page size scaled to 80%. **(2 marks)**

(ii) Enter the values 2, 3, 4 and 5 in the cell range B20: B23 respectively representing the hotel star category ratings. **(1 mark)**

(iii) Using a function and cell references:

Compute the total revenue for each hotel references;

II compute the total revenue for each hotel category in the 1st quarter using reference values in the range B20: B23 in cells C20: C23. **(5 marks)**

(iv) Sort the revenues from the hotels in descending order of hotels. **(2 marks)**

(p) (i) Create a column chart that compares the revenues of the hotels in star category 4 for the 1st and 2nd quarter. **(4 marks)**

(ii) Format the chart created as follows:

I. Chart title "FIRST AND SECOND QUARTER REVENUES" **(2 marks)**

II. Move the chart to a new sheet and rename the sheet as FourStar **Revenues. (2 marks)**

(i) Save the changes and print later each of the following:

(i) original worksheet showing the column and row headings; **2 marks)**

(ii) formatted worksheet; **1 mark)**

(iii) FourStar Revenues chart. **1 mark)**

2. Popo City planners intend to use a Desktop Publishing program to draw a plan for a section of a city. Assume you have been given the task.

(a) (i) Open a desktop publishing program and set the page layout orientation to portrait and paper size to A4. **(2 marks)**

(ii) Save the publication as Task 2 **(1 mark)**

(c) Create the city plan as it appears In Figure 2 ensuring that the design covers the entire printable area of the page. **46 marks)**

c) Save the changes and print the publication later. **(1 mark)**

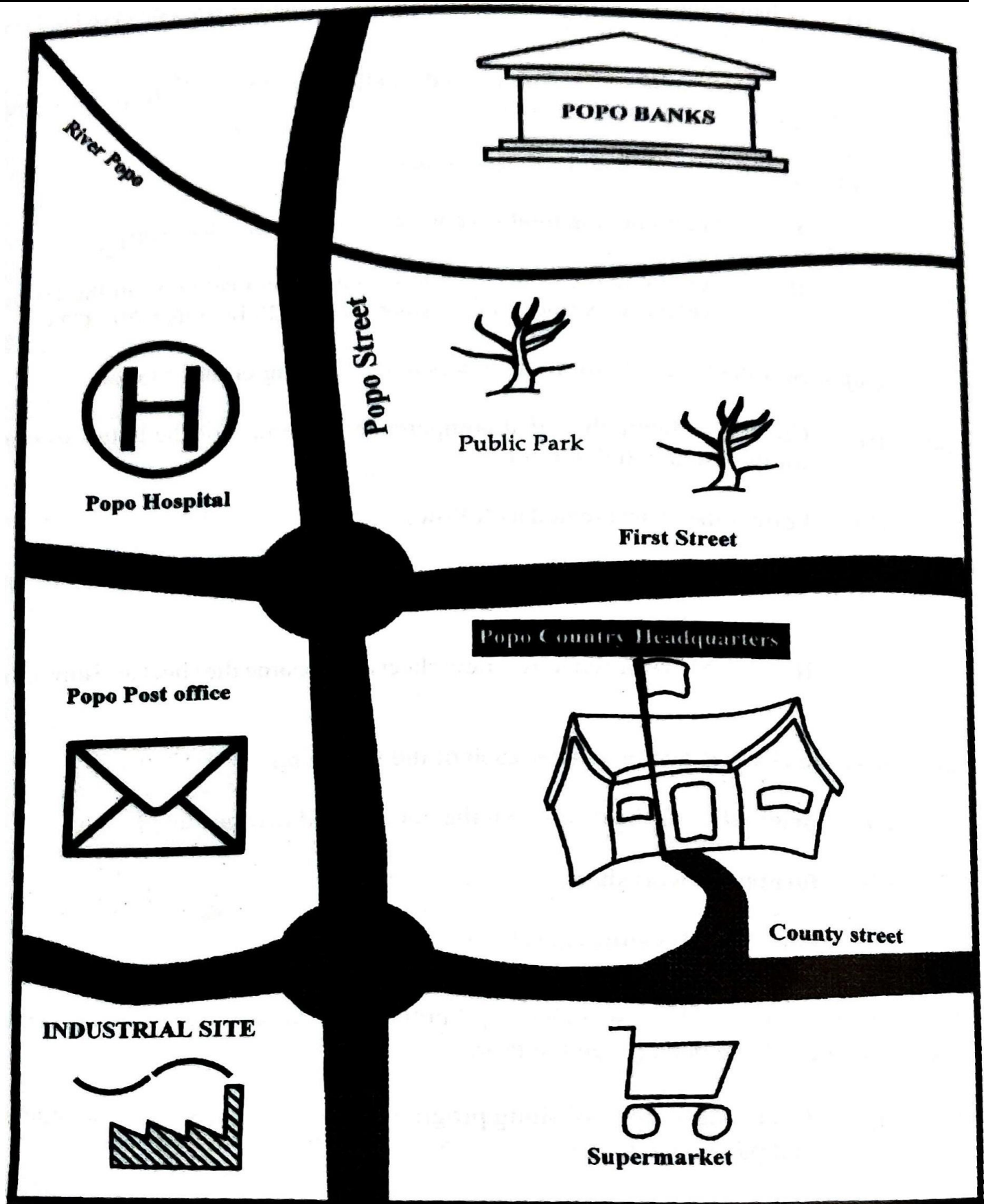


Figure 2

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 9**

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other ***THREE*** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A

Answer All questions in this section

1. Name four categories of input devices (4marks)
2. State any two data transmission **impairments** (2marks)
3. Explain the emerging trends in microcomputer technology in relation to size (2marks)
4. Name any two physical measures taken to protect a computer lab from unauthorized access. (2 marks)
5. Mention two things that are likely to cause strain- in the computer room (2 marks)
6. What are turnaround documents? (1 mark)
7. Name any two data capture techniques that make use of turnaround documents (2 marks)
8. State four functions of Read – Only Memory (ROM) (4 marks)
9. Lydia connected new multimedia speakers to her computer and tried to play her favorite music CD, but no sound came out. Suggest two problems that might have occurred (2 marks)
10. Explain why documentation is necessary for any software package (2 marks)
11. A firm intends to purchase new software. List three items of documentation that should accompany the software (2 marks)
12. Give three advantages of using GUI based operating system over a command line interface (3marks)
13. Distinguish between disk compressing and disk defragmenting (2 marks)
14. Describe TWO roles of each of the following;
 - (a) Database Administrator (2 marks)
 - b) System analyst (2marks)
15. Define the following terms in relation to computer security: (6 marks)
 - a) Data Encryption
 - b) Sabotage
 - c) Firewall

SECTION B: 60mks

Answer question 16 (Compulsory) and any other THREE questions from this section

16. a) State the three basic types of program control structures. **(3 marks)**

b) Below is an algorithm that is used to compute the values of R, S and T.

```
P = 5
Q = 6
INPUT N
If N is GREATER OR EQUAL TO 10
R = P * Q
S = Q - P
T = P + Q + R + S
ELSE
R = P + Q
S = Q
T = R + S
END IF
PRINT R, S and T
```

c) From the algorithm, determine the output if the input value of N is **(6 marks)**

i) 7;

ii) 10;

d) Draw a flowchart for the algorithm in question 16(b) **(6 marks)**

17. a) Name and describe Three main application areas of Artificial Intelligence in ICT. **(6 marks)**

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

c) List FOUR types of computer processing files. **(4 marks)**

d) Distinguish between data verification and data validation **(2 marks)**

18. a) Name and Explain any three types of errors that are likely to exist in a program? **(6 marks)**

b) Explain TWO functions of networking software in a computer **(2 marks)**

c) Give two advantages and two disadvantages of impact printers **(4 marks)**

d) State three features of a fifth generation computer that distinguishes it from a fourth generation computer. **(3 marks)**

19. a) Explain the following types of data processing modes

(i) Batch processing (2 marks)

(ii) Real time processing (2 marks)

b) Differentiate between phased and parallel implementation methods. (2marks)

c) A student presented a budget in the form of a worksheet as follows

	A	B	C
1	Item	Amount	
2	Fare	200	
3	Stationery	50	
4	Bread	300	
5	Miscellaneous	150	
6	Total		

i) Given that the value 0.5 is typed in cell B9, write the shortest formula that would be typed in cell

C2 and then copied down the column to obtain half the values in column B. (2 marks)

ii) Write two different formulae that can be typed to obtain the total in cell B6 and then copied to cell C6. (2 marks)

d) (i) Give any two components of Satellite. (2 marks)

(ii) Give three advantages of satellite. (3 marks)

20. a) Describe the mesh topology as used in networking. (2 marks)

b) Give three Advantages of the mesh topology. (3 marks)

c) Give two Examples of radio waves. (2 marks)

d) Give two reasons why would you prefer fiber optical cables to any other cable? (2 marks)

e) State two reasons for use of binary in digital technology. (2 marks)

f) Determine the value of X in the equations:

i) $X_2 + 1101_2 = 70_{10}$ (2 marks)

ii) $100110_2 - X_2 = 001010_2$ (2 marks)

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 9**

451/2

COMPUTER STUDIES

PAPER 2 (PRACTICAL)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

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QUESTIONS

1. The following table contains details of Huduma Hospital.

PATIENT ID	PATIENT NAME	DATE OF VISIT	DATE OF DISCHARGE	BILLED AMOUNT	PAID AMOUNT	MODE OF PAYMENT	RECEIPT NO	DOCTOR ID	DOCTOR NAME	ILLNESS
P3001	TOSHA	2/2/2023	2/3/2023	50000	10000	Mpesa	6001	D101	Amani	Cancer
P3002	PHILYS	13/2/2023	18/2/2023	20000	10000	Mpesa	6006	D101	Amani	Fracture
P3003	SALIM	12/2/2023	16/2/2023	15000	12000	Cash	6011	D105	Bahati	Cholera
P3004	BRAYO	14/2/2023	16/2/2023	17000	5800	Cash	6015	D103	Upendo	TB
P3005	PHILIP	17/2/2023	17/2/2023	1000	1000	Cash	6030	D104	Uzima	Headache
P3006	JOAN	20/2/2023	21/2/2023	5000	5000	Cash	6040	D103	Upendo	TB
P3007	CARLOS	1/3/2023	3/3/2023	7500	5000	Cash	6051	D101	Amani	Toothache
P3008	QUINTER	2/3/2023	5/3/2023	4500	2500	Mpesa	6073	D102	Joyce	Malaria
P3009	GULAMU	5/3/2023	15/3/2023	15000	2500	Cash	6084	D102	Joyce	Malaria
P3010	GERALD	17/3/2023	21/3/2023	8500	3500	Mpesa	6099	D104	Uzima	BP

a) Create a database file that can be used to store the above data and save it as **Huduma_Hospital**.

(2 marks)

- b) Design THREE tables, one for the **Patient_ Details**, **Account_ Details** and **Doctors_ Diagnosis** (14 marks)
- c) Create a relationship between the three tables (5 marks)
- d) Using appropriate forms, enter the information given into the Three tables (13 marks)
- e) Create a query ;
- i) To display patients who paid via Mpesa. Save the query as **Mpesa Payments** (2 marks)
- ii) To display the number of day's patients stayed in the hospital. Save the query as **Days Spend** (4 marks)
- f) Create a report showing all patients whose arrears (unpaid balances) are greater than 5000. Save the report as **Patient Arrears** (5 marks)
- g) Print out the following:
- i) **Patient_ Details**, **Account_ Details** and **Doctors_ Diagnosis** tables (3 marks)
- ii) **Mpesa payments** query (1 mark)
- iii) **Patient Arrears** report (1 mark)
2. The Battle Within intends to use a Desktop Publishing program to design the following publication that will feature in a newspaper. Assume you have been assigned the task.
- a) Open a Desktop Publishing Program and apply the following:
- i) Page layout orientation: Portrait (1 mark)
- ii) Paper size: A4 (1 mark)
- iii) All Margins: 0.5" (4 marks)
- iv) Save the publication as *The Battle Within* (2 marks)
- b) Design the publication as it appears ensuring it covers the entire printable area. (35 marks)
- c) Insert the header and footer and format them as follows:
- i) Header: **Email: stressmanagementkenya@gmail.com** and align it at the Centre (2 marks)
- ii) Footer: **#TalktoSomeone#PreventSuicide** and align it to the right. (2 marks)
- d) PRINT the publication (3 marks)



THE BATTLE WITHIN

Consultancy Services

Teenagers Mental Health, Self Awareness Drugs,
Sexuality & Cultism Awareness Campaign

Introduction

2023

Why is mental health awareness campaign important?

- 20% of Kenyans experience depression before the age of 30 years according to the WHO.
- According to WHO, every **40 seconds** somebody commits suicide across the globe; making an approx. 800,000 people dying from suicide annually.
- Kenya is losing at least 10 individuals daily due to suicide and at least 5 more to mental; health related complication.
- Teenagers are engaging in social evil and dangerous practices as they try to find their identity.
- In fact, secondary schools are the hotspots for recruitment into the vices.

TRAINING OBJECTIVES

- Understanding stress, signs & symptoms in teenagers.
- Understanding effects of stress on development of a teenagers brain.
- How to understand types of immorality and their sources.
- Types of addiction sources and their consequences.
- Understanding how to handle , social media without negative influence.
- Self awareness and development in teenagers.

Background

Social media and homosexuality , drugs and crime

- a. The world has shifted from the intimate physical relationships to online communities that are attached together by similar interests.
- b. Teenagers are excited about being able to follow people and communicate with them about intimate issues without having to travel to meet.
- c. Fake social media lives are a negative influence on the lives of the teenagers who do not have a way of differentiating fake from genuine.
- d. Drug abuse has been accepted as part of social media content making it look fashionable among teenagers.

KCSE 2025 CROSS-COUNTRY MOCKS

NATIONAL TRIAL 10

451/1

COMPUTER STUDIES

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided above
- This paper consists of **two** sections A and B.
- Answer **ALL** questions in section A.
- Answer question **11** and any other **THREE** questions from section B.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	SCORE
A	1-15	
B	16	
TOTAL SCORE		

SECTION A*Answer All questions in this section*

1. Explain what is meant by the terms:- (4 marks)
 - i) FDD.....
 - ii) HDD.....
 - iii) CMOS.....
 - iv) TFT.....
2. Outline TWO application areas of Artificial Intelligence (2 marks)
3. State TWO ways of identifying an illegal copy of an Operating System (2 marks)
4. List any four publications that can be created using a Publishing application software (2 marks)
5. Describe a speech synthesis system (2 marks)
6. Find the Value of T_8 in the following binary equation: $110_{10} - AB_{16} = T_8$ (3 marks)
7. State any TWO factors one would consider when selecting any data output device. (2 marks)
8. Input devices can be categorized according to how they are used to enter data namely keying devices, pointing devices, scanning devices, speech recognition devices and other digital devices. Give TWO examples each of the following devices.
 - (i) Scanning devices. (1 mark)
 - a).....(b).....
 - (ii) Other digital devices. (1 mark)
 - a).....(b).....
 - (iii) Pointing devices. (1 mark)
 - a).....(b).....
9. Describe the following types of monitors (3 marks)
 - a) Cathode Ray Tube(CRT)
 - b) Liquid Crystal Display (LCD)
 - c) Gas Plasma
- 10(a) State TWO functions of Read Only Memory (ROM) (2 marks)
 - (b) Give two characteristics of ROM (2 marks)
11. Explain the meaning of the following system characteristics. (2 marks)
 - i) Entropy
 - ii) Controls

12. Discuss TWO computational errors giving example in each case. (4 marks)
13. Differentiate between WORM and a VIRUS. (2 marks)
14. Differentiate sequential file organization from indexed sequential file organization 2 marks)
15. Give any THREE functions of the central processing unit (CPU) (3 marks)

SECTION B (60 marks)

Answer questions 16(Compulsory) and any other three questions from this section.

16. a) Differentiate between Assembler and Interpreter as used in programming. (2 marks)
- b) Give any THREE objectives that fourth génération programming languages were designed to meet. (3mks)
- c) On the Nairobi-Nakuru highway, the Kenya Police have put speed cameras at a certain point to read the time a vehicle passes a point (A) on the road and then reads the time it passes a second point (B) on the same road. (Points A and B are 200 meters apart). The speed of the vehicle is calculated using:
- $Speed = \frac{100}{(time\ at\ point\ B - time\ at\ point\ A)} (Km/hr)$
 - The maximum allowed speed is 100 kilometers per hour.
 - 500 vehicles were monitored using these cameras over a 1-hour period.
- (i) Write a pseudo code, which: (5 marks)
- Inputs the start time and the end time for the 500 vehicles that were monitored
 - Calculates the speed for each vehicle using the formula above.
 - Outputs the speed for each vehicle and a message if the speed exceeded 100 km/hour.
- $\geq 100km/hr$ “High Speed”
- $< 100km/hr$ “Normal Speed”

PSEUDOCODE

- (i) Draw a flow chart for the above pseudo code. (5 marks)
- 17.(a) Distinguish between the following sets of terms as used in spreadsheets
- (i) Worksheet and workbook. (2 marks)
 - (ii) Filtering and sorting. (2 marks)

(b) State one way in which a user may reverse the last action taken in a spreadsheet package.

(1mark)

(c)The following is a sample of a payroll. The worksheet row and column headings are marked 1,2,3..... and A,B,C..... respectively.

	A	B	C	D	E	F	G	H
1	NAME	HOURS WORKED	PAY PER HOUR	BASIC PAY	ALLOWANCE	GROSS PAY	TAX DEDUCTION	NET PAY
2	WAITHERA	21	750					
3	CHEPKOECH	28	850					
4	CHUMBA	14	550					
5	NKIROTE	20	1000					
6	NANA	23.5	250					
7	KIBET	25.5	500					
8	AUMA	14	250					
9	ATITWA	18	1500					
10	MOCHAMA	35	350					
	TOTALS							

Use the following expressions to answer the questions that follow

- Basic pay = Hours worked x pay per hour
- Allowances are allocated at 10% of basic pay
- Gross pay = Basic pay + allowances
- Tax deductions are calculated at 20% of gross pay.
- Net pay = Gross pay – tax deductions.

Write formulae using cell references for the following cells:

- (i) D2..... (1mark)
- (ii) E4..... (1mark)
- (iii) F10..... (1 mark)
- (iv) G7..... (1 mark)
- (v) H5..... (1 mark)

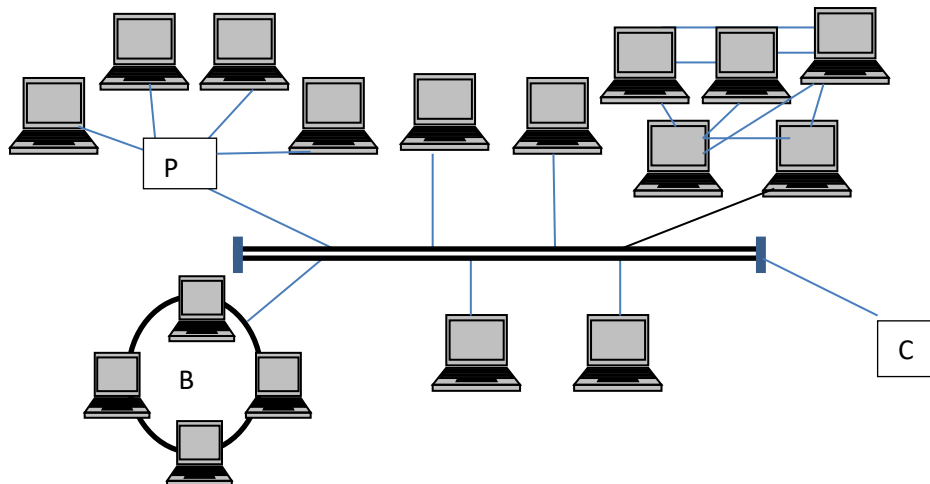
d) (i) State THREE ways of moving round a page in Desktop Publishing window. (3 marks)

ii) State TWO ways on how Information and Communication Technology (ICT) has been used to reduce the spread of COVID 19 (2 marks)

18. a.(i) List down THREE advantages of ATM cards. (3 marks)
- (ii) State FOUR components of an electronics Point of Sale. (2 marks)
- b. Give THREE reasons why a manager may prefer to teleconference during meetings. (3 marks)
- c. Menengai Company would like to introduce use of a new information system. State THREE reasons why the company would like to introduce a new information system? (3 marks)
- d. Once the whole system has been designed and constructed, it will need to be implemented. Describe TWO system changeover strategies that are likely to be used. (4 marks)

19.a) Explain why an intranet is more secure when sharing files within an organization compared to the internet. (1 mark)

- b) The network setup below is formed by combining several LANS. Use it to answer the questions (i) – (v) below.



- (i) Identify the network device P and C. (1mark)
- (ii) State the importance of the network device P and C (2 marks)
- (iii) What is the name given to the combined topology in figure above? (1mark)
- (iv) Identify the network topologies used in the above diagram (2marks)
- (v) State TWO disadvantages of topology connected to device P. (2marks)
- c) A company has three branches M,N and O , where M is the headquarter. The local area network (LAN) at M is directly connected to LAN at N and directly connected to the LAN at O. Explain two benefits of having LAN at N also directly connected to the LAN at O. (4 marks)

- d) The government of Kenya ordered all broadcasting TV stations to switch from analog transmission to digital TV transmission. **State two** benefits of digital transmission over analog transmission (2 marks)
20. a) Describe the following computer memories. (2 marks)
- i. Register:
 - ii. Cache:
- b. Explain Real-time Processing data processing mode giving TWO areas where it can be used. (5 marks)
- c. Describe any TWO coding schemes used in Data representation (4 marks)
- d. List FOUR devices controlled by the Operating System (2 marks)
- e. Define a Laptop (2 marks)

KCSE 2025 CROSS-COUNTRY MOCKS**NATIONAL TRIAL 10**

451/2

COMPUTER STUDIES**PAPER 2 (PRACTICAL)****TIME: 2½ HOURS**

NAME.....

SCHOOL..... SIGN.....

INDEX NO..... ADM NO.....

Kenya Certificate of Secondary Education.**INSTRUCTIONS TO CANDIDATES**

- a) Indicate your name and index number at the right hand corner of each printout*
- b) Write your name and index number on the CD/removable storage medium provided*
- c) Write the name and version of the software used for each question attempted in the answer sheet provided*
- d) Answer all the questions*
- e) All questions carry equal marks*
- f) Passwords should not be used while saving in the CD/removable storage Medium*
- g) Marked printout of the answers on the sheet*
- h) Arrange your printouts and staple them together*
- i) Hand in all the printouts and the CD/removable storage medium used*
- j) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the CD/WR provided*

QUESTIONS

1. The Judiciary Service Commission would like to conduct interviews on different shortlisted applicants.

Required.

- (a) (i) Create the main document below as it appears and save it as **JLetter**. (21 marks)

JUDICIARY SERVICE COMMISSION,
P.O. BOX PRIVATE BAG-00100,
NAIROBI.

10th October, 2023.

<<First Name>> <<Second Name>>,

<<Postal Address>>,

<<City>>.

Dear <<Salutation>>,

RE: INVITATION TO AN INTERVIEW

This is to let you know that you have been shortlisted for an interview scheduled on <<date of visit>> at <<venue>> from <<Time>> for the <<Title>> position.

Please come with your:

- (a) Original Identity Card
- (b) Original Academic Certificates
- (c) EACC Compliance Certificate
- (d) Certificate of Good Conduct
- (e) HELB Clearance Certificate
- (f) KRA Compliance Certificate

A successful candidate will be entitled to the salary scales as shown in the table below:

TITLE	JOB GROUP	BASIC SALARY(KSH)
ICT OFFICE	TS III	102,050
CLERK	TS I	63,480
ACCOUNTANT	TS IV	90,345
TOTAL		255,875

We look forward to your attendance.

Yours sincerely

Chris Nyachoti.

Director

(ii) Proofread the document (2 marks)

(iii) Format 1.5 Line spacing in the body section (2 marks)

(b) Create a Data source below for the candidates and save it as **JRecipients** (15 marks)

First Name	Second Name	Postal Address	City	Salutation	Date Of Visit	Time	Venue	Title
Charles	Omukuba	P.O BOX 12	Busia	Sir	3 rd November, 2023	11:00 am	Golf Club Hotel	ICT Officer
Grace	Kith	P.O BOX 102	Nairobi	Madam	2 nd November, 2023	8:00 am	Serena Hotel	Clerk
John	Pilau	P.O BOX 38	Mombasa	Sir	4 th November, 2023	9:00 am	Intercontinental hotel	Accountant
Peter	Gakere	P.O BOX 25	Laikipia	Sir	4 th November, 2023	9:00 am	Intercontinental hotel	Accountant

Antony	Kipchoge	P.O BOX 57	Bomet	Sir	3 rd Novemb er, 2023	11:00 am	Golf Club Hotel	ICT Office r
Gladys	Mutua	P.O BOX 27	Machakos	Madam	3 rd Novemb er, 2023	11:00 am	Golf Club Hotel	ICT Office r
Gilbert	Muriithi	P.O BOX 18	Meru	Sir	2 nd Novemb er, 2023	8:00 am	Serena Hotel	Clerk
Janet	Kati	P.O BOX 42	Turkana	Madam	4 th Novemb er, 2023	9:00 am	Intercont inent al hotel	Accounta nt

(c) Using mail merging, create a merged document and save it as **JSC_Merged**. (4 marks)

(d) Print the following documents

(e) **JLetter** (2 marks)

(f) **JRecipients** (2 marks)

(g) **Kith's and Kipchoge's letters only** (2 marks)

2. a) The MBORANU Hospital in your county would like to computerize their operations. They have consulted you to create a database and save it as **MBORANU Hospital**. (2 marks)

b) Create the two tables below with the shown fields. (10 marks)

(i) **PatientsDetails Table**

Field Name	Data Type	Field Size
PNO	Text	3
Patient Name	Text	30
Age	Number	Long integer
Residence	Text	15
City	Text	10
Gender	Text	2

(ii) Medical Records Table

Field name	Data type	Field size
PNO	Text	3
Doctor	Text	30
Diagnosis	Text	50
Treatment	Text	50
Bill Amount	currency	
Amount Paid	currency	

c) Set the Primary Key for each table (2 marks)

d) Using the appropriate fields create a relationship between the two tables. (4 marks)

e) Create forms for each table and save them appropriately. Use them to enter records into the respective table. (10 marks)

Patients Details Table

PNO	Patient Name	Age	Estate	City	Gender
001	John Kimanzi	19	Kinoo	Kiambu	M
002	Jane Wanjiru	37	Siaya	Kisumu	F
003	Jack Omondi	32	Mathare	Nairobi	M
004	Mary Kimani	42	Buruburu	Nairobi	F
005	Grace Banda	36	Donholm	Nairobi	F
006	Aaron Odhe	30	Mamba	Mombasa	M
007	Mary Otieno	29	Matuu	Kitui	F
008	Shah Vadgama	34	Parklands	Nairobi	M

Medical Records Table

PNO	Doctor	Diagnosis	Treatment	Bill	Amount Paid
003	Isaac Omondi	Malaria	Quinine	500	500
006	Grace Achuman	Depression	Antidepressants	2500	2000
004	Francis Kimani	Headache	Paracetamol	200	200
002	Alex Kioko	Appendicitis	Operation	10000	2000

- f) Create a query to display:
- i. All patients whose names end with letter “i”. Save the query as **Iquery** (3 marks)
 - ii. All patients whose age is above **30** and come from **Nairobi City**. Save the query as **Agequery** (3 marks)
- g) Create a query to compute the balance of the bill amount and save it as **Balquery**(4 marks)
- h) Create a report with the title “**2023 MBORANU PATIENTS REPORT**” used to display **PNO, Patient Name, Age, Doctor, Diagnosis, Treatment and Bill**. Save the report as **patients report** (6 marks)
- i) Print
 - i. Patients_Details table (2 marks)
 - ii. Age query (2 marks)
 - iii. Patients report (2 marks)

THE END

FOR THE FOLLOWING;

- ❖ ONLINE TUITION
- ❖ REVISION NOTES
- ❖ SCHEMES OF WORK
- ❖ SETBOOKS VIDEOS
- ❖ TERMLY EXAMS
- ❖ QUICK REVISION KITS
- ❖ KCSE TOPICALS
- ❖ KCSE PREMOCKS
- ❖ TOP SCHOOLS PREMOCKS
- ❖ JOINT PREMOCKS
- ❖ KCSE MOCKS
- ❖ TOP SCHOOLS MOCKS
- ❖ JOINT MOCKS
- ❖ KCSE POSTMOCKS
- ❖ TOP SCHOOLS PREDICTIONS
- ❖ KCSE PREDICTIONS
- ❖ KCSE REVEALED SETS

***To Obtain Copies of Respective Marking
Schemes / Answers***

CALL/TEXT/WHATSAPP

0746-222-000

0742-999-000

mwalimuconsultancy@gmail.com

kcsepredictions@gmail.com

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SUCCESS

CAUTION TO KCSE 2025 CANDIDATES:

**IN CASE / ON EVENT YOU REALIZE PART OF THESE
QUESTIONS WERE DIRECTLY OR INDIRECTLY LIFTED IN
THE FINAL KCSE 2025 EXAMINATIONS PLEASE DO NOT
PANIC!**

KILA LA HERI