# KCSE 2025 PREDICTIONS

## 2025-TOP SCHOOLS' SERIES

# COMPUTER STUDIES

## (EXPECTED EXAMS 1-10)

***A premium collection of expertly curated KCSE 2025 prediction questions Obtained from Kenya's top 10 national schools. This comprehensive, well-organized compilation reflects national standards, offering high-quality practice to boost student readiness, confidence, and performance in upcoming final KCSE exams.***

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## CONFIDENTIAL!

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***For Marking Schemes***

***Mr Isaboke 0746-222-000 / 0742-999-000***

# ALL THE BEST! SUCCESS!

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 1

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTION TO CANDIDATES**

- Write your name and index number in the spaces provided above
- *This paper consists of **two** sections **A** and **B**.*
- *Answer **ALL** questions in section **A**.*
- *Answer question 16 and any other THREE questions from section B.*
- *All answers should be written in the spaces provided on the question paper.*

**For Examiners Use Only**

| Section | Questions | Candidates Score |
|---|---|---|
| A | 1-15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | TOTAL SCORE | |

## SECTION A (40 MARKS)

**Answer ALL the questions in SECTION**

**1.** Mention two devices that can connected to the computer via HDMI cable **(2marks)**

**2.** State three ways in which ICT can be used to enhance customer service delivery in a supermarket **(3marks)**

**3.** List two types of job opportunities that are available in the field of computer hardware **(2marks)**

**4.** Mr. Kamau is a teacher at Chianda High School used Ms-Excel to process the marks obtained by his student during the term. The table below shows the details entered in the Ms-Excel worksheet

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| **1** | **Name** | **CAT 1** | **CAT 2** | **CAT TOTAL** | **EXAM** | **TOTAL MARKS** | **POSITION** | **GRADE** | **REMARK** |
| **2** | **Mark Jama** | **14** | **06** | **20** | **56** | 76 | **1** | | |
| **3** | **Caleb Wekeza** | **13** | **08** | **21** | **34** | **55** | **6** | | |
| **4** | **Kanini Mulue** | **10** | **04** | **14** | **59** | **73** | **3** | | |
| **5** | **Justine Melanie** | **11** | **07** | **18** | **57** | **75** | **2** | | |
| **6** | **Julia Wahome** | **06** | **09** | **15** | **48** | **63** | **5** | | |
| **7** | **Austin Kilome** | **08** | **07** | **15** | **50** | **65** | **4** | | |

**Hints**

**CAT1is out 15, CAT2 is out 15 and Exam is out 70**

**(a)** Give the formula used to calculate the Total Marks for Julia Wahome **(1mark)**

**(b)** Write a function that gives each student his position in class based on the performance **2 marks)**

**(c)** Write a logical function that will display the following remarks in column I **(2marks)**

| Total Marks | Remark |
|---|---|

| | |
|---|---|
| **0 - 49** | **Fail** |
| **50 - 59** | **Above Average** |
| **60 - 69** | **Fair** |
| **70 - 79** | **Good** |
| **80 - 100** | **Excellent** |

**5.** Give two reasons to justify why SATA cables are used in modern computers to connect the hard disk to the motherboard **(2mrks)**

**6.** Give three file systems supported by windows operating system **3marks)**

**7.** Describe the use of the following keys found on a standard keyboard **(2marks)**

**(a)** Esc

**(b)** Prt sc

**8.** Explain the following terms with references to algorithm

**(a)** Definiteness **(2marks)**

**(b)** Finiteness **(2marks)**

**9.** Mention two ICT related courses offered in Kenyan universities at undergraduate level **(2marks)**

**10.** What is flaming **(2marks)**

**11.** A Principal of a school wishes his school to have an internet connection in a bid to improve its service delivery. Mention three internet connectivity requirements that must be present to enable the connection. **(3marks)**

**12.** Identify two limitations of traditional approach to system development **(2marks)**

**13.** Use flowchart to demonstrate how IF THEN and REPEAT..... UNTIL can be implemented **(2marks)**

**14.** State three functions of Repeater stations in data communication **(3marks)**

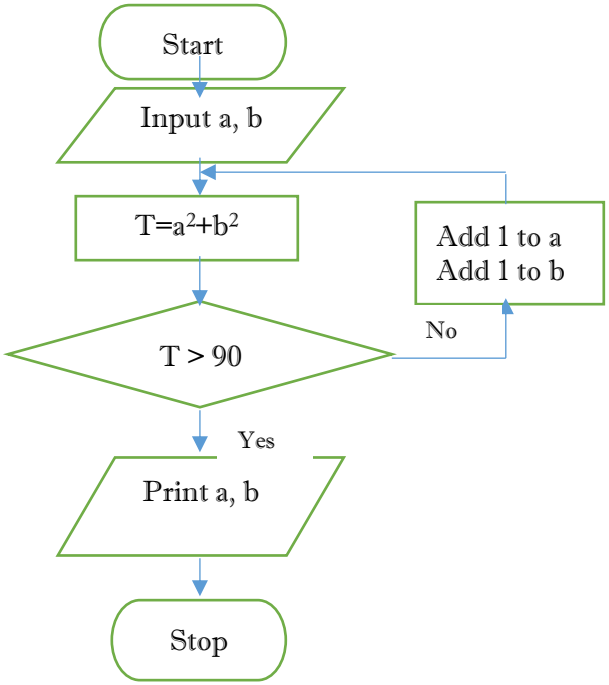
**15.** Describe three layout guides available in DTP that assist a user to place an object in a preferred position **(3marks)**

## SECTION B (60 MARKS)

**16.** a) State three features of a compiler **(3marks)**

**b)** When writing a computer program programmers are always advised to use approaches and techniques that make the program easy to follow and maintain. List four ways in which a programmer can make program code easy to follow **(4marks)**

**c)** Study the flowchart below and use it to answer the questions that follow




(i) Given that the user keyed in 3 as the value of a and 1 as the value of b get the final output of the flowchart **(3marks)**

(ii) Use a pseudo code to represent the flowchart in (c) **(5marks)**

**17.** a) Briefly describe the three main coding schemes **(3marks)**

**b)** Convert the following numbers to binary number

(i) B2.AAH **(3marks)**

(ii) $\frac{13}{64}$ base 10 **(3marks)**

**c)** The table below was created using Ms-Access use it to answer the questions that follow

Table Name: Product

| Product ID | Product Name | Unit Cost | Quantity | Total |
|---|---|---|---|---|
| P00101 | Milk | 120 | 34 | 4080 |
| P00201 | Bread | 100 | 56 | 5600 |
| P00301 | Beans | 150 | 45 | 6750 |

(i) State the most appropriate data type for Product ID and Total **(2marks)**

(ii) Suggest how you would set the input mask for the Product Name so that the data entered in that field appear the way they are in the table **(2marks)**

(iii) Represent the dynaset shown below in a SQL form given that the table Name is product **(2marks)**

| Product ID | Product Name | Unit Cost | Quantity | Total |
|---|---|---|---|---|
| P00101 | Milk | 120 | 34 | 4080 |

**18.** a) Describe four services available in the internet that support business **(4marks)**

**b)** Modern computing has embraced the use of drop box, google drive and OneDrive. These platforms are hosted by the internet and many computer users prefer backing up their data using these facilities. Give three reasons to justify this phenomenon **(3marks)**

**c)** Jeff a computer student from Ramba High school launched the browser to access the internet , the browser displayed an error message Server Not Found on the screen this didn't allow Jeff to access the internet. State three possible causes of this anomaly **(3marks)**

**d)** Briefly describe the following features of word processor **(2marks)**

(i) Subscript

(ii) Drop cap

**e)** State two arithmetic operation that can be performed on a row of a numeric data in a word processor table **(1 mark)**

**f)** In each case of (e) above give the expression used **(2marks)**

**19.** a) Enumerate four breakthroughs in health care instigated by ICT **(4marks)**

**b)** Mention four application areas of Artificial Intelligence **(3marks)**

**c)** List three scanning devices available at Electronic Point Sale Terminal **(3marks)**

**d)** Describe two ways of preventing eavesdropping **(2marks)**

**e)** System failure is considered as threat to data security. Describe three measures an organization should put in place to guard against system failure **(3marks)**

**20.** a) Identify modes of data communication represented in (i), (ii), (iii) and (iv) below **(4marks)**

**(i)** Principal Addressing students in assembly using public address system

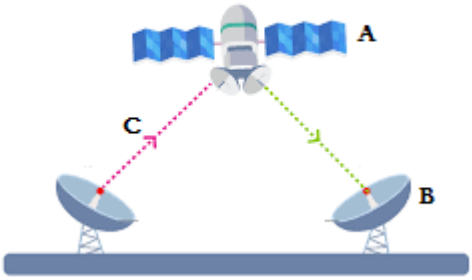
**(ii)** WhatsApp chat

**(iii)** Phone conversation

**(iv)** Walkie talkie conversation

**b)** List three challenges experienced by computer networks that are set up using twisted pair cables **(3marks)**

**c)** Study the diagram below and use it to answer the questions that follow




**(i)** Identify the parts labelled A, B and C in the diagram above **(3marks)**

**(ii)** State function of the part labelled A **(2marks)**

**d)** Name any three components of virtual reality **(3marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 1

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**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 top right hand corner of each printout*
***b)*** *Write your name and index number on the CD/Removable storage media provided*
***c)*** *Write the name and version of software used for each question attempted in the answer sheet provided*
***d)*** *Answer all questions*
***e)*** *All questions carry equal marks*
***f)*** *Passwords should not be used while saving in the CD/Removable storage medium*
***g)*** *All answers must be saved in the CD/Removable storage medium*
***h)*** *Make printout of the answers on the answer sheet*
***i)*** *Arrange your printout and ties/staple them together*
***j)*** *Hand in all printouts and the CD/Removable storage medium used*
***k)*** *This paper consists of five printed pages*
***l)*** *Candidates should check the question paper to ascertain all the pages are printed as indicated and that no question is missing*
***m)*** *Candidates should answer the questions in English*
***n)*** *ALL Data for currency data type should be formatted to Kenya Shillings*
***o)*** *All the system Date and Time should be set to correct Kenya time and Date settings*

## QUESTION ONE

a) The data below shows a spreadsheet for loan applicants from a youth fund from a certain county.

| MEMBER NO | NAME | DATE OF BIRTH | DATE OF APPLICATION | GENDER | AGE | AMOUNT APPLIED |
|---|---|---|---|---|---|---|
| A001 | ABC | 1/3/1992 | 1/1/2016 | M | | Ksh 200,000.00 |
| B001 | CDE | 2/6/1999 | 3/1/2016 | F | | Ksh 600,000.00 |
| C008 | FGH | 5/6/1992 | 3/1/2016 | M | | Ksh 400,000.00 |
| K001 | JKL | 2/7/1990 | 7/1/2016 | F | | Ksh 700,000.00 |
| S007 | MNO | 2/9/1960 | 7/1/2016 | M | | Ksh 600,000.00 |
| Z006 | KRS | 4/8/1992 | 2/2/2016 | M | | Ksh 500,000.00 |
| A008 | TUV | 4/8/1960 | 3/2/2016 | M | | Ksh 700,000.00 |
| B005 | CED | 2/6/1995 | 5/2/2016 | F | | Ksh 600,000.00 |
| C011 | HGF | 5/6/1990 | 10/2/2016 | M | | Ksh 400,000.00 |
| K012 | LKJ | 2/7/1970 | 6/1/2016 | M | | Ksh 700,000.00 |
| S019 | NOM | 2/9/1991 | 4/6/2016 | M | | Ksh 600,000.00 |

Type the data as shown in the spreadsheet above name the worksheet as Original save the workbook as application. **(14 Marks)**

**(b)** Copy the worksheet named original above to another worksheet in the same workbook and name it as Evaluation.

**(i)** Fill the column for the (AGE) which is the difference between DATE OF APPLICATION and DATE OF BIRTH in years to the nearest whole number. **(6 Marks)**

**(ii)** Create a validation in the DATE OF APPLICATION such that it should be after DATE OF BIRTH. **(2 Marks)**

**(iii)** Format all columns having currency Data type to Kenya shilling. **(2 Marks)**

**(iv)** Create the columns COMMENT and AMT AWARDED.

The COMMENT is based on the following

- I f the gender is male and the age by the data of applicable is greater than 30 years the COMMENT is INELIGIBLE otherwise ELIGIBLE.
- Amount awarded if a person is eligible if 80% of the amount applied.

**(v)** Fill in the two columns for the AMOUNT AWARDED and COMMENT using the formula. If an applicant is INELIGIBLE the amount awarded is left blank. **(10 Marks)**

(c) Copy the worksheet named Evaluation above to another worksheet in the same workbook and name it as final.

(i) Filter out data in the final in the final worksheet leaving out those who have been awarded a loan. **(2 Marks)**

(ii) Create a table showing the total amount awarded to all Males and total awarded to Females and total for both male and females. In the sample table below fill in the values using conditional if statement . **(6 Marks)**

| | AMOUNT(Ksh) |
|---|---|
| **MALE** | |
| **FEMALE** | |
| ***Total*** | |

(iii) Draw a pie chart representing the total amount for males awarded and females warded **(2 Marks)**

(d) Print the following: **(4 Marks)**

**(i)** Original worksheet

**(ii)** Evaluate worksheet

**(iii)** Final worksheet

**(iv)** The pie chart

## QUESTION TWO

The table below an extract of a manual data structure system used by a librarian of a particular school

| ADMNO | S_NAME | CLASS | BOOK_NO | TITLE | BORROW TYPE | DATE_BORROWED | DATE_RETURNED |
|---|---|---|---|---|---|---|---|
| 123 | MIKE | 1A | B001 | COMPTER STUDIES BK 1 | SHORT | 2-1-2016 | 12-1-2016 |
| 456 | JOHN | 1B | A002 | COMPREHENSIVE ENG BK 1 | LONG | 1-2-2016 | 17-1-2016 |
| 789 | ADREW | 1C | B003 | KIE MATHEMATICS BK 1 | LONG | 1-3-2016 | 14-3-2016 |
| 987 | JAMES | 2A | D004 | LONGHORN GEOGRAPHY BK2 | SHORT | 1-4-2016 | 8-4-2016 |
| 654 | JACOB | 2B | K005 | KISWAHILI SHAIRI BK2 | SHORT | 1-5-2016 | 9-5-2016 |
| 321 | NANCY | 2C | B006 | MATHEMATICS BK2 | SHORT | 2-3-2016 | 10-3-2016 |
| 879 | MARY | 3A | C005 | HISTORY BK3 | LONG | 2-4-2016 | 17-4-2016 |
| 564 | MERCY | 3B | K009 | FOUNDATION CHEMISTRY BK 1 | LONG | 2-5-2016 | 14-5-2016 |
| 213 | PETER | 3C | H001 | KISWAHILI LUGHA BK 2 | LONG | 1-4-2016 | 18-4-2016 |
| 123 | MIKE | 1A | K005 | KISWAHILI SHAIRI BK2 | SHORT | 1-5-2016 | 19-5-2016 |
| 456 | JOHN | 1B | B006 | MATHEMATICS BK2 | SHORT | 1-4-2016 | 5-4-2016 |
| 789 | ADREW | 1C | C005 | HISTORY BK3 | SHORT | 1-4-2016 | 7-4-2016 |
| 987 | JAMES | 2A | K009 | FOUNDATION CHEMISTRY BK 1 | LONG | 1-5-2016 | 8-5-2016 |
| 654 | JACOB | 2B | H001 | KISWAHILI LUGHA BK 2 | LONG | 1-4-2016 | 22-4-2016 |

The library charges 2 shillings per every book borrowed per day, if the book is not returned in time it attracts a penalty of 5 Shilling per day. The short loan is a maximum of seven days while the long loan is 14 days

**a)** From the table above create a database called library.

**(i)** Create THREE tables Student(ADMNO as primary key) and Book(BOOK_NO as primary key) and Borrow( Borrow_id as primary key which is auto number). **( 6 Marks)**

**(ii)** Create relationship between the three tables **( 2 Marks)**

**(iii)** Fill in the data in the three tables **( 15 Marks)**

**b)** Create a the following queries

**(i)** Query named chargesqry for all charges for books on short loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,NORMAL_CHARGE,PENALTY_CHARGE,TOTAL_CHARGE)( 10 Marks)

**(ii)** Query named shortchargesqry for all charges for books on short loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,TOTAL_CHARGE) **( 2 Marks)**

**(iii)** Query named longchargesqry for all charges for books on long loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,TOTAL_CHARGE) **( 2 Marks)**

**(iv)** Create a report showing the total amount which the library has earned between any two dates on short loan save it as shortbetweendatesrpt format the currency data type to Kenya shillings **( 6 Marks)**

**(v)** Create a report showing the total charged to a student for both long and short loan borrowing in one report save it as studentchrgrpt format the currency data type to Kenya shillings **( 4 Marks)**

**c)** Print the following **( 4 Marks)**

**(i)** All tables with data

**(ii)** Both query with data

**(iii)** Shortbetweendatesrpt

**(iv)** studentchrgrpt

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 2

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- ***(a)*** *Write your name and index number in the spaces provided above.*
- ***(b)*** *This Paper consists of **two** sections **A** and **B**.*
- ***(c)*** *Answer **all** the questions in **section A**.*
- ***(d)*** *Answer **question 16** (compulsory) and any other **three** questions from section **B**.*

**FOR EXAMINERS USE ONLY**

| SECTION | QUESTION | |
|---|---|---|
| A | 1 – 15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| TOTAL MARKS | | |

## SECTION A (40 MARKS)

*Attempt ALL questions from this section*

**1.** What is meant by Data Communication Equipment (DCE)? **(1 mark)**

**2.** List **three** examples of Data Communication Equipment. **(3 marks)**

**3.** (i) Name **three** types of graphics used in a word processor **(3 marks)**

(ii) Distinguish between subscript and section breaks **(2 marks)**

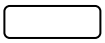
**4.** List any **three** protocols used in sending and receiving of emails **(3 Marks)**

**5.** State the use of each of the following flowchart symbols **(3 marks)**

***i.***

***ii.***

***iii.***



**6.** State **any two** techniques used by a network administrator to detect and prevent computer crimes. **(2 marks)**

**7.** State **two** transmission media used in wireless transmission **(2 marks)**

**8.** With the aid of a diagram describe the Hierarchical Database Model **(2 marks)**

**9.** List any **three** factors that should be considered when developing a database application and give reasons why each should be considered. **(3 marks)**

**10.** Name any **three** types of validation checks during data entry **(3 marks)**

**11.** (i) Differentiate between primary key and index key as used in databases. **(2 marks)**

(ii) Differentiate between hardware and software portability. **(2 marks)**

**12.** State **three** ways in which computer virus infection can be prevented other than through restricting the usage of removable storage media. **(3 marks)**

**13.** State **two** advantages of **real time** data processing mode. **(2 marks)**

**14.** State **two** roles of an information system **(2 marks)**

**15.** A company in town wishes to link its offices together; the linking may be through wireless or fibre optic network media. State **two** benefits that the company would gain from the use of metropolitan area network (MAN) **(2 marks)**

## SECTION B (60 MARKS)

**Answer question 16 and any other THREE questions from this section B**

**16.** (a) State **four** guidelines followed when designing a flowchart. **(2 marks)**

(b) A concert was organized in a hall with a capacity of 1500 people. The first 700 people to buy the tickets at ksh. 1500 were reserved a seat at the VIP section while the others who bought their tickets at ksh. 1000 sat at normal hall outside the VIP section. Assuming that only 1420 tickets were sold;

**(i)** Write a program pseudo code that would be used to determine the sitting arrangements of ticket holders i.e VIP or Normal, the number of VIP, Normal and Unoccupied seats and finally display the total amount of money collected from the concert. **(6 marks)**

**(ii)** Draw a flowchart for the pseudocode above **(7 marks)**

**17.** (a) Differentiate between a **select** query and **action query** as used in databases.**(2 marks)**

(b) Explain **four** elements of database **(4 marks)**

(c) Explain the use of each of the following field properties as used in databases **(3 marks)**

**(i)** Validation rule

**(ii)** Input mask

**(iii)** Indexed

**(d)** Kiprono has been experiencing a lot of problems in his computer while using it. As a result, he was advised to do the following in order to avoid the problems.

**(i)** Compress the disk files

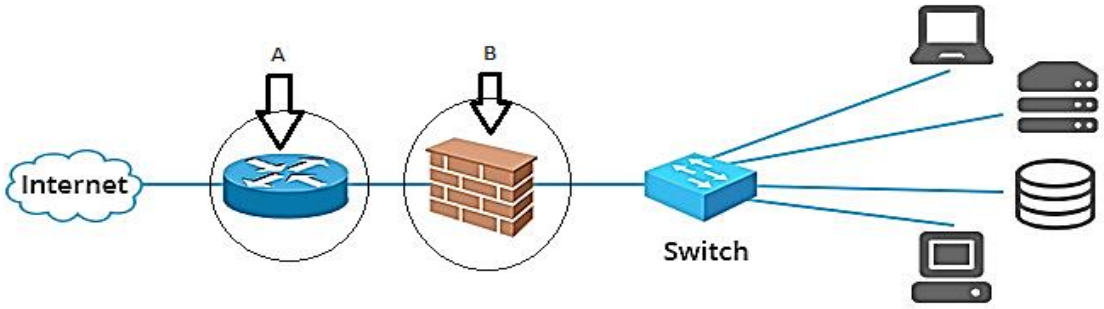
**(ii)** Defragment the disk.

Explain the difference between the two terms above **(2 marks)**

**(e)** Differentiate between Multi-user operating system and Multithreading operating system. **(2 marks)**

**(f) State two** roles of a programmer in system development life cycle **(2 marks)**

**18.** (a) The diagram below shows a network arrangement that includes a network security feature to protect data and information. Use it to answers the questions that follow.




**(i)** The networking device labeled **A** is used to connect computers to a WAN (Internet). Name the device used for this purpose. **(1 mark)**

**(ii)** The part labeled **B** is a security feature used to protect data traffic in the network. Identify and explain the function of this part. **(2 marks)**

**(b)** Define a network node. **(1 mark)**

**(c)** State any **two** functions of a network operating system. **(2 marks)**

**(d)** The internet has been embraced as great a great resource for information and a variety of applications. State **two** ways in which a book publisher can make use of the internet.**(2 marks)**

**(e)** Name and explain **two** types of twisted pair cable used in data transmission**.** **(3 marks)**

**(f)** With aid of a labeled diagram, describe ring network topology; stating **one** disadvantage of such network. **(4 marks)**

**19.** (a) Convert each of the following numbers to decimal equivalent; given that the left most bit is a sign bit.

(i) 0101011 **(2 marks)**

**(ii)** 111110101 **(2 marks)**

(b) Differentiate between **enhanced BCD** and **ASCII-8** coding scheme of representing data in computers. **(2 marks)**

(c) Compute the following binary arithmetic expressions.

(i) 1010.101 + 11.011 **(2 marks)**

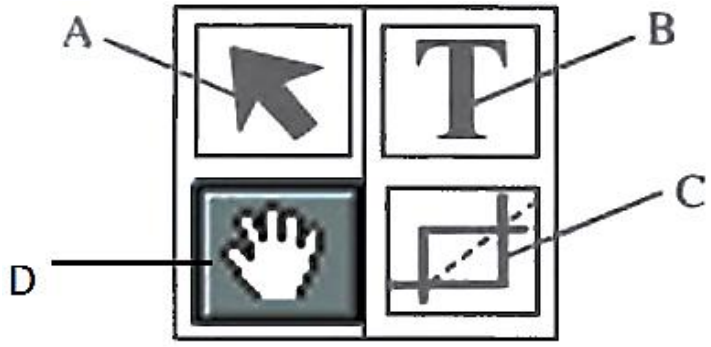
(ii) 1010.101 - 11.011 **(2 marks)**

**(d)** Convert $0.42_{10}$ to 6-bit binary notation. **(2 marks)**

**(e)** Using 8-bit twos complementation, perform the following binary operation. **(3 marks)**

$111010_2 - 27_{10}$

**20.** The figure below is a toolbar for a **DTP** package.




**(a)** Name and state the functions of the tools labeled A, **B, C** and D. **(4marks)**

**(b)** Using relevant examples give **four** advantages of using desktop publishing software. **(4 marks)**

**(c)** State **four** advantages of automated production. **4 marks)**

**(d)** Most industries use computers for process control. Give any **three** benefits of this.**(3mks)**

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# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 2

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME……**

**SCHOOL…… SIGN……**

**INDEX NO…… ADM NO……**

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

1. *Type your name and index number at the top right hand corner of each printout.*
2. *Sign and write the date of the examination below the name and index number on each printout.*
3. *Write your name and index number on the compact disks.*
4. *Write the name and version of the software used for each question attempted in the answer sheet.*
5. *Passwords should not be used while saving in the compact disks.*
6. *Answer all the questions.*
7. *All questions carry equal marks.*
8. *All answers must be saved in your compact disks.*
9. *Make a printout of the answers on the answer sheets provided.*
10. *Hand in all the printouts and the compact disks.*

**1. (a)** (i) Using a database management system, create a database file named **ANTIGUA_ENT_LTD** to store the data below. **(1 mark)**

**CommodityTable**

| Commodity_ID | Commodity_Name | Retail_Cost |
|---|---|---|
| C10 | Apple Vinegar Super | 400 |
| C20 | Assorted Sandwich | 300 |
| C30 | Sweetener Max | 130 |
| C40 | Soda 1L | 120 |
| C50 | UPS APC 2 | 5000 |
| C60 | Persil Detergent | 130 |
| C70 | Minute maid | 120 |
| C80 | Pizza XL | 1000 |
| C90 | Sacho Springs water 5L | 650 |
| C100 | UPS APC 1 | 3000 |

**SuppliersTable**

| Supplier_ID | Supplier_Name | Town |
|---|---|---|
| S-11 | Antigua Foods | Nakuru |
| S-12 | Prime Fast Food | Nairobi |
| S-13 | Gilanis Mart | Nakuru |
| S-14 | Power Dynamics Ltd | Eldoret |
| S-15 | Panda Energy | Nakuru |
| S-16 | SAHICO | Kabarnet |
| S-17 | Rio Beverages | Nakuru |

**OrderTable**

| Order_ID | Commodity_ID | Supplier_ID | Order_Date |
|---|---|---|---|
| 101 | C10 | S-11 | 12/04/19 |

| | | | |
|---|---|---|---|
| 102 | C20 | S-12 | 22/04/19 |
| 103 | C30 | S-11 | 12/04/19 |
| 104 | C40 | S-11 | 02/05/19 |
| 105 | C50 | S-14 | 12/04/19 |
| 106 | C60 | S-16 | 22/08/18 |
| 107 | C70 | S-17 | 19/08/18 |
| 108 | C80 | S-12 | 12/04/18 |
| 109 | C90 | S-13 | 11/05/18 |
| 110 | C100 | S-15 | 15/04/18 |

(ii) Create tables named: **Commodity_Table, Suppliers_Table and Order_Table** in the database created in (a) to store the information above assigning appropriate data types for each field.

**(14 marks)**

(iii) Identify a field to be assigned as primary key for each table. **(**$1\frac{1}{2}$ *marks*)

(iv) Create relationships among the tables and enforce referential integrity. **(3 marks)**

**(b)** Capture the number of units for the Commodities as shown below in the Commodity Table.

**(3 marks)**

| **Commodity_ID** | **No Of Units** |
|---|---|
| C30 | 50 |
| C10 | 20 |
| C60 | 89 |
| C40 | 18 |
| C50 | 10 |
| C20 | 16 |
| C70 | 35 |
| C80 | 5 |
| C90 | 21 |
| C100 | 17 |

**(c)** Create a query named **RETAILCOST** to display Commodity name, retail price, number of units, suppliers' name and calculate the total retail price for each Commodity. **(4 marks)**

**(d)** Create a query named **CUSTOM_QR** to display name of each Commodity, retail price and number of units ordered. The query should contain Commodities whose suppliers name start with letter **"P"** and Total Retail Price is between Ksh.4000 and less than Ksh.50,000.**(5 marks)**

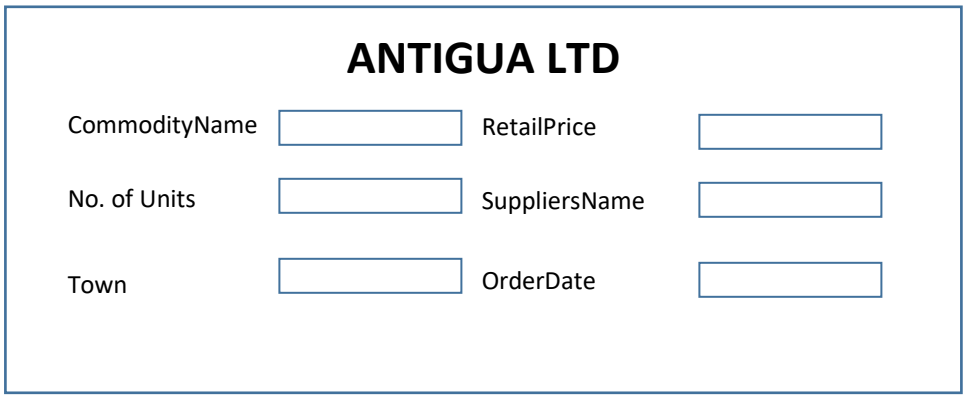
**(e)** Create a report named **SUPPLIERS_RPT** to display Commodity name, suppliers' name, total retail price and date of order. **(4 marks)**

- *Group records per suppliers' town*
- *Title the report as "**ANTIGUA SUPPLIERS DETAILS**"*
- *Show the Total Retail Prices per supplier.*

**(f)** Create a report named **ORDERS_2019** to display Commodity name, retail price, suppliers' name, town and items ordered in the year 2018 only. Show the number of suppliers.**(**$3\frac{1}{2}$*marks*)

**(g)** Create a pie chart to display Total Retail Prices and their respective Commodities.**(2 mks)**

**(h)** Create a form named **COMMODITIES_2018** used to enter data in the database to appear as shown below **(5 marks)**




**(i)** Print the following (4 marks)

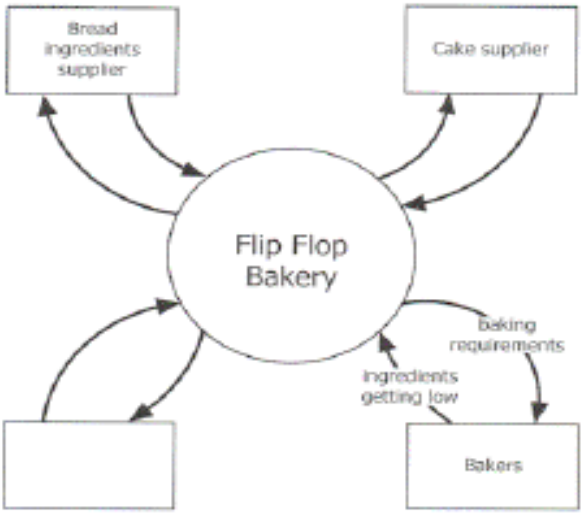
- **Tables:** CommodityTable
- **Queries:** RETAIL_COST and CUSTOM_QR
- **Reports:** SUPPLIERS _RPT

**Question 2**

**a)** Launch a Desktop publishing software and set the measurements to centimeters, margins 2cm all round and paper size A4 potrait. (1½ marks)

# Data flow diagram (DFD)

**A data flow diagram (DFD)** is a design tool to represent the flow of data through an information system.A *"context level"* DFD can be used to show the interaction between a system and outside entities; it can also show the internal data flows within a system. This version is also called a **context diagram**. It often shows the information system as a single circular shape with no details of its inner workings: what it shows is its relationships with the *external entities*.





For a diagram to be called a DFD, it needs to show the inner workings of an information system. The different levels of a DFD indicate how detailed it is, e.g. a Level 0 DFD is a broad overview of a system, showing hardly any detail within the system. A level 2 DFD explodes more summarised processes and shows another level of complexity within them. A level 3 or 4 DFD shows even more components opened up to show their inner details.With a dataflow diagram, developers can map how a system will operate, what the system will accomplish and how the system will be implemented. It's important to have a clear idea of where and how data is processed in a system to avoid double-handling and bottlenecks. A DFD also helps management organise and prioritise data handling procedures and staffing requirements

DATAFLOWDIAGRAM

**b)** Design the publication above (in page 4) as it appears and save it as MOKASA_2.(**30 marks)**

**c)** Format the Title " Data Flow Diagram (DFD)" as follows: **(6 marks)**

**(i)**

- ***Character spacing:*** *300%*
- ***Font style:*** *Times New Roman*
- ***Font size:*** *13.5*

**(ii**) Modify the shape containing the title as follows:

- ***Background*** *: Gradient with 17% transparency, Shading style Horizontal*
- ***Border line*** *: Double*

**d)** Apply a first line indent to the first paragraph of the document. **(2 marks)**

**e)** Proofread your publication. **(½ mark)**

**f)** Insert your full index number as a watermark of your publication. **(2 marks)**

**g)** Insert your full name as the header, Class and admission number as the footer of your publication . **(2 marks)**

**h)** Insert page number at the right bottom margin of your page. **(2 marks)**

**i)** Insert the Date and time created for this document after the first paragraph. **(2 marks)**

**j)** Print your publication **(2 marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 3

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**Instructions to Candidates**

1. *This paper consists of TWO sections; A and B*
2. *Answer all questions in sections A.*
3. *Answer question 16 and any other THREE questions from section B.*

**FOR EXAMINERS USE ONLY**

| SECTION | QUESTION | |
|---|---|---|
| A | 1 – 15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | TOTAL MARKS | |

**SECTION A (40 MARKS)**

***Answer All Questions In This Section***

**1.** Differentiate between cold booting and warm booting in computing **(2mks)**

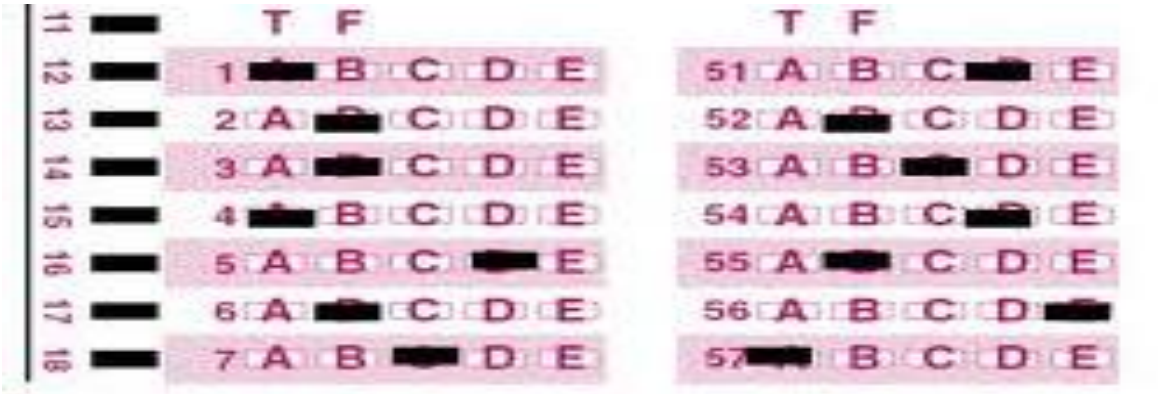
**2.** Define parallel processing **(1mk)**

**3.** (a) Mention any **TWO** reasons why command-based operating systems are not common in today's business computer systems. **(2mks)**

(b) Explain any **THREE** functions of an operating system with respect to memory management **(3mks)**

**4.** Differentiate between partitioning and formatting as used in disk management **(2mks)**

**5.** Name the type of scanner used to capture data from the following document format below **(1mk)**




Computer output can now be in form of spoken words in digitized speech. An example of such application is spell learning devices for children. State ONE advantage of speech output. **(1mk)**

**6.** Mention any **TWO** features that are considered before buying a main memory module**.(2mks**

**7.** A technician recommended a computer in the principal's office needs upgrading of the CPU. State any TWO reasons that may have necessitated the upgrading of the CPU. **(2mks)**

**8.** State **TWO** reasons why secondary storage is preferred to main memory in data storage.**(2m)**

**9.** (a) State **ONE** advantage of relational database model over flat files **(1mk)**

(b) State **TWO** uses of primary keys in a database **(2mks)**

(c) A database requires data to be defined by assigning data types to fields for purposes of consistent storage.Describe any **FOUR** data types that can be allowed in Ms Access. **(4mks)**

(d) Define the term macro as used in databases **(1mk)**

**10.** State any **ONE** reason why USB interface cables are widely used in computing device**(1mk)**

**11.** A company is considering replacing some of its software, including its word processing package, and to acquire an integrated software package. State **TWO** advantages for the company in using in tegrated software rather than separate packages. **(2mks)**

**12.** (a) State **TWO** types of DTP software **(2mks)**

(b) List **FOUR** page formatting features in DTP **(2mks)**

**13.** (a) Explain the meaning of "what if analysis" in spread sheets (2mks)

(b) The table below shows items consumed by some students for breakfast in a given day.

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | | ITEM COST | | | |
| 2 | NAME | | SAUSAGE | TEA | BANANA | TOTAL COST |
| 3 | | | 15.00 | 10.00 | 5.00 | |
| 4 | Charles | | 1 | 1 | 2 | 35 |
| 5 | Amoit | | 2 | 4 | 2 | 80 |
| 6 | David | | 3 | 1 | 2 | |
| 7 | Okello | | 2 | 1 | 2 | 50 |

(i) Using an expression, find the total expenditure incurred by David **(2mks)**

(ii) State what you would obtain from the expression = Count IF (F4:F7, ">45")**(1mk)**

**14.** Define the following terms as used in relation to operating systems (2mks)

**(i)** Folder

**(ii)** Drive

## SECTION B (60 MARKS)

***Answer Question 16 And Any Other Three Questions From This Section***

**15.** (a) State any THREE advantages of using Object Oriented programming for writing programs **(3mks)**

(b) In a computer contest with 40 entries, three papers are tested and the final marks awarded according to the average of the papers. The final marks are then ranked to get position 1, 2 and 3 who are awarded trophy, cash and scholarship, trophy and cash, and cash respectively Write a program pseudocode and flowchart that will prompt for the name, school and marks for each paper then compute the final marks and rank and display the students name, school, final marks position and award.

i. Pseudocode **(5mks)**

ii. Flowchart **(7mks)**

**16.** (a) With the aid of a well labeled diagram, describe control and feedback model in a system **(4mks)**

**17.** between the following terms as used in system development **(4mks)**

**i.** Hard system and soft system

**ii.** Operational feasibility and technical feasibility

(c) State **THREE** ways in which organizations manage system entropy **(3mks)**

(d) Explain any **TWO** reasons for system maintenance **(1mk)**

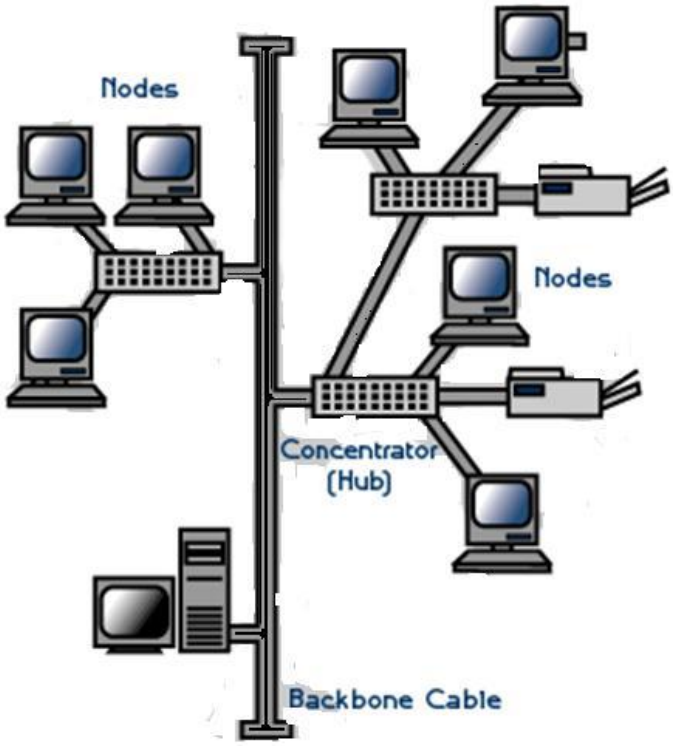
(e) Briefly explain **THREE** ways in which computers can be used in motor vehicle manufacturing companies **(3mks)**

**18.** (a) Distinguish between the following terms as used in data communication (**4mks)**

**i.** Guided transmission and unguided transmission

**ii.** Multiplexing and demultiplexing

(b) Below is a diagram of a network topology.




**i.** Name the above topology **(1mk)**

**ii.** State **ONE** advantages and **ONE** disadvantage of using the topology named above **(2mks)**

(c) (i) State **TWO** ways in which users in an organization can be a security threat to data in an information system. **(2mks)**

(ii)Define cyber terrorism **(1mk)**

(d) A school intends to set-up an e-mail.

L**ist FOUR** activities likely to be provided by the e-mail facility. **(2mks)**

(e)Define the following terms as used in the internet. **(2mks)**

(i)Internet blog

(ii) Webportals

(f) Kenya publishing and printing company wishes to employ an ICT professional to assist in making publications .State the suitable ICT professional the firm could employ **(1mk)**

**19.** (a) (i)List and explain the THREE types of errors that can occur during data collection stage of data processing **cycle** **(3mks)**

(ii)Distinguish between master file and transaction **(2mks)**

(iii) Define real time processing **(1mk)**

(iv) Explain a situation where the batch processing would be **appropriate** **(1mk)**

(b) Using twos complement, perform the following operation and give your answer in decimal notation

- $777_8 - 25_{10}$(4mks)

(c) Solve $AC_{16}+101_2=X_2$ **(2mks)**

(d) Convert binary number $11010110.1001_2$ into octal number. **(2mks)**

**20**. (a) State any TWO negative effects of introducing robots in a manufacturing plant **(2mks)**

(b) State THREE advantages of using computers **(3mks)**

(c) Name THREE types of special purpose memories used in a computer **(3mks)**

(d)Explain the purpose of the system clock **(2mks)**

(e) (i) In word processing, differentiate between text wrap and word wrap **(2mks)**

(ii) List any THREE types of section breaks used in word. **(3mks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 3

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**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 top right hand corner of each printout.*
b) *Write your name and index number on the CD provided.*
c) *Write the name and version of the software used for each question attempted.*
d) *Answer **all** questions.*
e) *All questions carry equal marks.*
f) *Passwords should not be used while saving.*
g) *Make a print out of the answers on the answer sheet.*
h) *Hand in all the print out and the CD.*

**1.** The table below shows the admission numbers and names of five students and their scores in six subjects in a mock examination.

| ADM. NO. | Name | English | Maths | Biology | Chemistry | Physics | History |
|---|---|---|---|---|---|---|---|
| 2020 | Victor Mutiso | 77 | 68 | 75 | 35 | 58 | 80 |
| 2032 | Zablon Onyango | 44 | 77 | 80 | 42 | 60 | 73 |
| 2037 | Pauline Nafula | 68 | 59 | 91 | 39 | 59 | 75 |
| 2040 | Naom Cherop | 55 | 80 | 89 | 48 | 38 | 66 |
| 2044 | Jameleck Kioko | 69 | 62 | 83 | 43 | 44 | 70 |

a) Enter the above data into a worksheet and save the file as 'mock results' **(13mks)**

b) Using a formula, calculate the; **(4mks)**

a) Total score for each students

b) Mean score for each student

c) Use a function to obtain the mean for each subject **(3mks)**

d) A student is awarded a 'pass' if their mean score is 60% or more. Use a function to determine the number of students who are awarded 'pass'

(2mks)

e) Format the worksheet as follows

- Borders : single line
- Subject heading : align 90°
- Marge the cells above all the subjects headings so that the text 'SUBJECT' is above them.
- Mean score : One decimal place

(4mks)

f) Copy the contents of the worksheet to a blank worksheet and insert a blank column after every subject.

Label the new columns as Eng B, math B, Bio B, Chem B, Phy B, and Hist B respectively. On the inserted columns, compute the grades using IF function based on the following criteria **(10mks)**

| Mean score | Grade |
|---|---|
| score≥75 | A |
| 60 ≤ score <75 | B |
| 50≤score < 60 | C |
| 45 ≤score <50 | D |
| Score < 45 | E |

g) Hide all the columns containing score values and save the worksheet as "Mock results 2" (**2mks)**

i)Create a bar chart to compare students mean score and label the chart accordingly. (10mks)

j) Print the two worksheets and the bar **chart** **(4mks)**

**2.** The data in the table was extracted from a survey data on employment.

Table 1: EMPLOYEE TABLE

| Name | Year of birth | Employee ID NO. | Employer ID | Job category |
|---|---|---|---|---|
| DAISY | 1980 | 13144 | 01 | GK4 |
| DAVID | 1970 | 11100 | 04 | GK3 |
| DOREEN | 1984 | 14010 | 02 | GK1 |
| DAVIN | 1976 | 12110 | 05 | GK1 |
| ALLAN | 1973 | 11410 | 03 | GK2 |
| KATE | 1968 | 10570 | 04 | GK3 |
| ZEDDY | 1990 | 11040 | 05 | GK3 |
| PIUS | 1998 | 15978 | 03 | GK2 |
| ZION | 1992 | 17192 | 02 | GK4 |
| BOB | 1993 | 18965 | 05 | GK4 |

Table 2: EMPLOYMENT TYPE

| Job Category | Job Description |
|---|---|
| GK1 | Casual |
| GK2 | Temporary |
| GK3 | Contract |
| GK4 | Permanent |

Table 3: EMPLOYER TABLE

| EMPLOYER ID | EMPLOYER NAME |
|---|---|
| 01 | ONYANGO |
| 02 | WAMBUA |
| 03 | OSHIRO |
| 04 | KATANA |
| 05 | AWINJA |

a) i) Create a database named "STAFF" to store the above **(14mks)**

ii) Create relationships between the tables **(4 ½ mks)**

iii) Use forms to enter data into the tables **(10 ½ mks)**

b) i) Generate a report to display the name year of birth, age and employer's name for the employees who will be over 30years old by the year 2015 **(10mks)**

ii) Compute the mean age of employees on the report you created in b(i) above. **(2mks)**

c) i) Create a query to display the employees and their jo description. Save the query as "STAFF TYPE" **(3mks)**

ii) Create a pie chart based on the query in c(i) above to display the proportion of employees in various job description.

Save the report as CHART

d) Print i) Three tables

ii) Two reports

iii) Output of query results for STAFF TYPE.

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 4

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME……**

**SCHOOL…… SIGN……**

**INDEX NO…… ADM NO……**

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- Write your **Name, Class, Admission Number** and **Index Number** in the spaces provided.
- Answer **ALL** the questions in **section A**
- Answer **question 16 (Compulsory)** and **any other three** questions from **section B.**

**For Official Use Only**

| Question | Maximum score | Actual score |
|---|---|---|
| 1-16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| TOTAL SCORE | | |

## SECTION A: (40 MARKS)

***Answer ALL Questions in This Section***

**1**. During a visit to the typing room, Jane a computer student observed a type of printer that uses a beam to create an image on a rotating drum. As the beam hits the drum, some regions attract ink toner particles. The toner is then fused onto a piece of paper.

I. State the name of this type of printer and indicate whether it is an impact or non-impact printer. **(1mark)**

II. List **two** advantages of using the printer mentioned in a. above. **(2marks)**

**2.** Bunam Water Company sends out field officers to take consumer meter readings. The data collected by the officers is then keyed into the computer. The system then generates utility bills which are printed and sent to the consumers.

i. State **two** transcription errors that are likely to occur during meter reading or input. **(1 mark)**

ii. State **two** ways such errors can be avoided. **(1 mark)**

**3.** Highlight the dangers associated with the following in a computer laboratory set up:

**a.** Purchasing software before assessing requirements. **(1 mark)**

**b.** Using foreign flash disks on the computer. **(1 mark)**

**4.** To process an instruction, the CPU goes through a cycle of three stages. Name each of the stages. **(3 marks)**

**5.** Explain the importance of the following spreadsheet operations. **(2 marks)**

(i) Freezing columns

(ii) Data validation

**(b)** Name **two** types of relationships that can be applied in database design. **(1 mark)**

**6.** Briefly explain any Four block operations that can be performed on data in word processing **(4 marks)**

**7.** **(a)** Mutiso wanted to upgrade the RAM of his computer. State two factors Mutiso should consider when purchasing a RAM module. **(1 mark)**

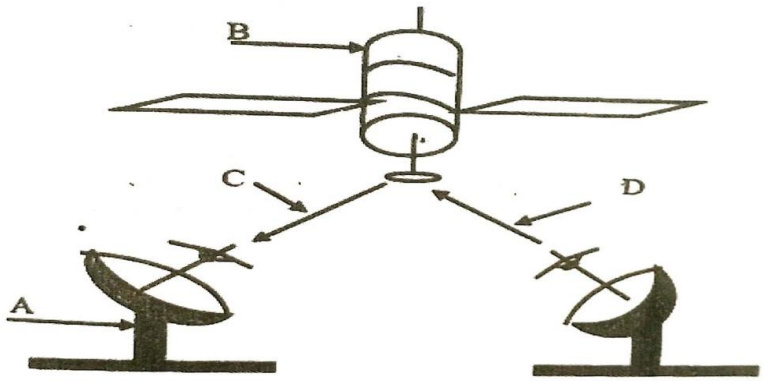
**(b)** Define the following terms: **(2 marks)**

(i) Computer Port

(ii) Power supply unit

**8.** Mkulima Bora is a society that embraced E-Commerce recently. The manager is convinced that there is illegal access to the company's system. State TWO ways in which the society can overcome this problem. **(2 marks)**

**9. (a)** Study the diagram below and answer the questions that follow.




(i) Name the communication media depicted in the above diagram **(1 mark)**

**(ii)** Name the parts labelled A, B, C, and D **(3 marks)**

**10**. In a desktop publishing document, an image embedded can be transformed in various ways. Name any **three** ways one can use to make the image fit in a designated area. **(3 marks)**

**11.** Differentiate between source program and object program. **(2 marks)**

**12.** Differentiate between the following terms in Internet **(4 marks)**

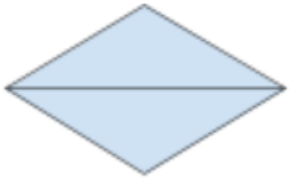
(i) Drafts and outbox

(ii) cc and bcc

**13.** State **two** characteristics of a computer that is infected by computer viruses. **(2 marks)**

**14.** Identify each of the following symbols as used in system flowchart. **(1 mark)**

(a)



(b)

**15.** Differentiate between bullets and numbering as used in DTP **(2 marks)**

## SECTION B (60 marks)

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

**16. a)** State any **three** activities that occur in a program compilation process. **(3 marks)**

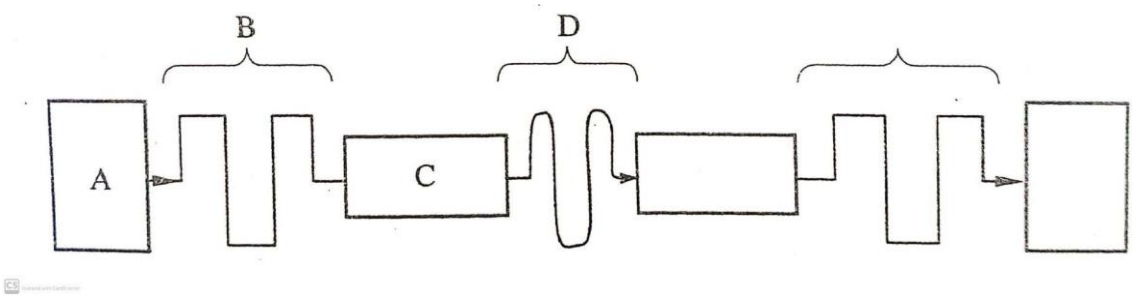
**b)** A program is needed for calculating the average age of students in a class. Write a pseudocode that will read the age of the students and calculate the average age. The program should terminate if the value of 999 is entered for age and output the number of times the statements within the loop were executed. **(10 marks)**

**c)** Give **two** types of errors that may be detected during program testing. **(2 marks)**

**17. a)** State **four** functions which are specific to Network Operating Systems. **(4 marks)**

**b)**State **two** advantage of using fibre optic cables over satellite in data communication. **(2 marks)**

c) (i) The figure below shows how data is transmitted through a public telephone . **(4 marks)**




Name A, B, C, and D

**d) (i)** List any **two** items that may be referred to as data terminal equipments in a network **(2 mks)**

**(ii)** Write the acronym MODEM in full **(1 mark)**

**(iii)** Explain the purpose of a modem when connecting to the internet. **(2 marks)**

**18. (a)** State **three** roles of a programmer in system development life cycle. **(3 marks)**

**(b)** State **four** activities that may be carried out when disposing off an old system in an organization **(4 marks)**

**(c)** Distinguish parallel changes over from straight change over as used in system implementation. **(2 marks)**

**(d)** Discuss **any two** fact finding methods. **(4 marks)**

**(e)** Differentiate between an open system and a closed system. **(2 marks)**

**19. a)** State **three** standard coding scheme used computing and electronic systems. **(3 marks)**

**b)** Convert each of the following numbers

i) $1001.001_2$ to octal. **(2 marks)**

ii) $125.5_{10}$ to hexadecimal. **(3 marks)**

**iii)** Add $1100.011_2$ to $11001.0101_2$ and leave your answer in decimal **(3 marks)**

**c)** Using <u>two</u> compliment perform the following arithmetic leaving your answer in binary form. $13_{10} - 15_{10}$ **(4 marks)**

**20. (a)** Distinguish between axis labels and data labels as used in spreadsheets. **(2 marks)**

**(b)** Name an electronic spreadsheet feature that allows one to perform the following actions.

**(4 marks)**

| Action | Feature |
|---|---|
| Provide pictorial summary of data | |
| Make one cell out of many | |
| List items from Highest to lowest or vice versa | |
| Make many cells out of one | |

**(c)** Explain the difference between the printing of multiple pages and multiple copies as used in word processing. **(2 marks)**

**(d)** Describe the following categories of software **(4 marks)**

i) Firmware

ii) Proprietary software

**(e)** Explain the meaning of solid state storage media giving **two** examples of it.

**(3 marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 4

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

## *Instructions to candidates*

1. *Write your name and Index number at the right hand corner of each print out.*
2. *Write your name and Index number on the CD provided.*
3. *Write the name and version of the software used for each question attempted in the answer sheet*
4. *Answer **all** the questions*
5. *Passwords **should not be used** while saving in the CD provided.*
6. *All answers **must** be saved in your CD provided.*
7. *Arrange your printouts and staple them together*
8. *Hand in all the **printouts** and the CD used*

**QUESTION 1**

**a)** Use DTP software to design the following business card using the following layout specifications:

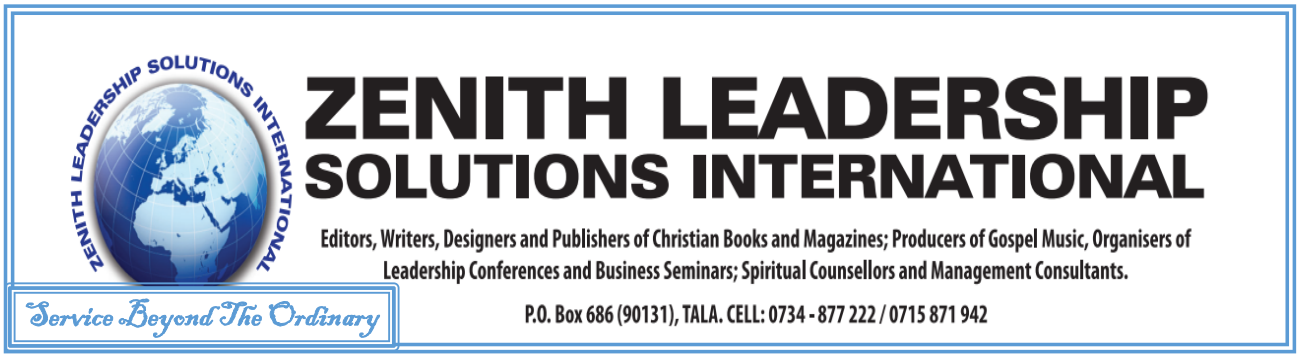
(i) Paper size A4 portrait. **(2 marks)**

(ii) Set the margins to 0.5 inches all round. **(2 marks)**

(iii) Divide the page into TWO columns **(2 marks)**

(iv) The border should occupy the first column **(2 marks)**

**b)** Prepare the publication as exactly as it appears and save it as Business card. **(10 marks)**




**c)** Insert your full name above the heading "ZENITH LEADERSHIP…" and centre it across **(5 marks)**

**d)** Create the logo to occupy between 0.8" to 1.80" left and 0.70" to 1.85" from top. **(5 marks)**

**e)** The title should occupy between 1.70" to 7.50" across and 0.75" to 1.45" from top. Font Arial black with italics and fill effect pattern of dark horizontal. **(5 marks)**

**f)** The words "ZENITH LEADERSHIP" should occupy 2.50" to 5.70" across and 1.50" to 2.00" from top. Font Book antique size 26, bold and centered. **(4 marks)**

**g)** The rest of the text is in font Bodoni MT size 12. **(2 marks)**

(i) Align all the text as shown. **(2 marks)**

(ii) Group the publication as one. **(2 marks)**

(iii) Fit FOUR copies of the design into a single page. **(2 marks)**

**h)** Include a page header with your index number. **(2 marks)**

**i)** Save as Updated Business card. **(1 mark)**

**j)** Print the publication **Business card** and **Updated Business Card**. **(2 marks)**

**Question 2**

The table below shows records extracted from Motors Sales Company Database. Create a database and name it MOTOR SALES.

**(1 mark)**

| Customer Name | Customer Address | Customer Town | Car Reg No | Car Type | Car Make | Car price | Customer ID | Amount paid |
|---|---|---|---|---|---|---|---|---|
| Ogutu | 254 | Nakuru | KBJ 001T | Truck | Nissan | 1,100,000 | B001 | 800,000 |
| John | 678 | Eldoret | KCM 002M | Bus | Mazda | 2,400,000 | B002 | 2,000,000 |
| Uhuru | 963 | Nairobi | KBB 003V | Saloon | Toyota | 800,000 | B003 | 800,000 |
| Ogutu | 147 | Nakuru | KCJ 004B | Pick up | Peugeot | 1,000,000 | B004 | 700,000 |
| Chumba | 456 | Bungoma | KCH 678B | Lorry | Isuzu | 3,000,000 | B005 | 2,000,000 |
| Kariuki | 789 | Webuye | KBB 006N | Pick up | Toyota | 1,800,000 | B006 | 1,600,000 |
| John | 678 | Eldoret | KBJ 007D | Bus | Scania | 7,500,000 | B002 | 7,500,000 |
| Uhuru | 963 | Nairobi | KCC 678G | Truck | Toyota | 1,800,000 | B003 | 1,800,000 |
| Phillip | 159 | Kisumu | KCJ 009H | Saloon | Nissan | 9,00,000 | B007 | 900,000 |
| Ogutu | 254 | Nakuru | KCH 010L | Pick up | Isuzu | 1,500,000 | B001 | 1,200,000 |
| Uhuru | 357 | Kisumu | KCJ 011J | Saloon | Peugeot | 600,000 | B008 | 600,000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Kariuki | 789 | Webuye | KBG 012B | Bus | Isuzu | 10,000,000 | B006 | 9,500,000 |
| Ogutu | 147 | Nakuru | KDA 013A | Truck | Nissan | 2,700,000 | B004 | 2,700,000 |

**a)** Using the data above, create a table that will hold Car details and another table to hold Customer details. Name them **TABLECAR** and **TABLECUSTOMER** respectively and set appropriate ***primary keys.*** **(4 marks)**

**b)** Enforce referential integrity between two tables. **(2 marks)**

**c)** Create different input forms for each table. Name them **FORMCAR** and **FORMCUSTOMER**. Use them to enter data into the tables. **(12marks)**

**d)** Display a report only showing the details of the Customers who have cleared paying for the Car. Name the report **REPORTCLEARED.** Add "**CLEARED CUSTOMERS''** as the title of the report**.** **(7 marks)**

**e)** Using the two tables create an *outlined report* showing the *customer details, the total amount paid by each customer* and *the total amount received* by the company. Name the report **SUMMARY** and the title as "**OVERALL CUSTOMERS REPORT**.'' **(8 marks)**

**f)** Create a query to display the Car details with balances of less than 300,000. Name the query as **BALQUERY.** **(4marks)**

**g)** Create a report showing the *Car type, the total sales for each car type* and *the grand total*. Name the report as **REPORTGRAND.** **(6 marks)**

**h)** Using landscape orientation, print **REPORTCLEARED**, **SUMMARY** and **REPORTGRAND** with *footers bearing your lastname* and *index number* at the *center of the page*. **(6 marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 5

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME……**

**SCHOOL…… SIGN……**

**INDEX NO…… ADM NO……**

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

***1)*** *This paper consists of* ***TWO*** *sections* ***A*** *and* ***B***

***2)*** *Answer* ***ALL*** *the questions in section A.*

***3)*** *Answer questions* ***16*** *and any other* ***THREE*** *questions from section B*

**FOR OFFICIAL USE ONLY**

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

## SECTION A(40 Marks)

***Answer all the questions in this section***

**1.** Explain disk formatting **(2mks)**

**2. (a)** Explain why the following controls should be implemented for computer based system **(2mks)**

**(i)** Data Back- ups

**(ii)** Password

**(b)** List two examples of utility software in operating systems **(2mks**

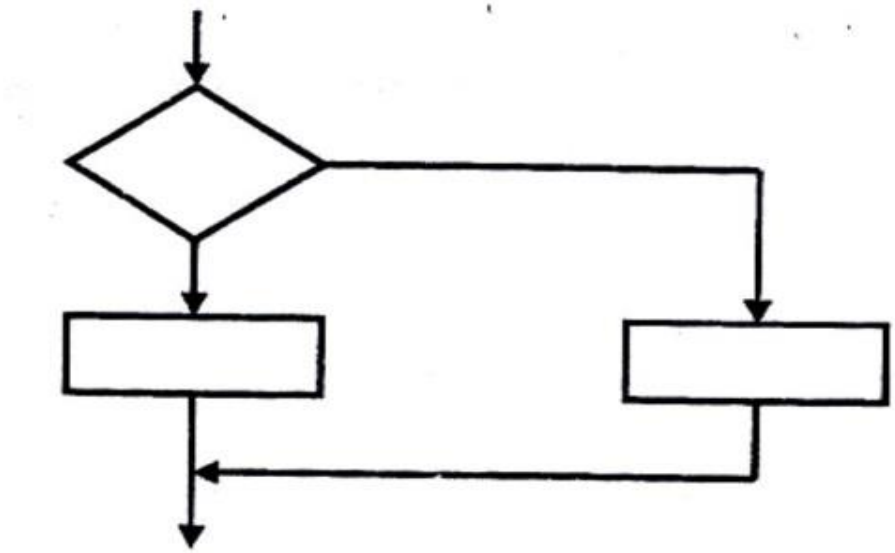
**3.** Differentiate between **source** code and **object** code **(4mks)**

**4.** The cells P3 to P20 of a worksheet contain remarks on students ' performance such as very good, good, fair and fail depending on the average mark. Write a formula that can be used to count ALL students who have the remark "very good". **(3 mks)**

**5**. State the purpose of registers in a computer system **(1 mk)**

**6.** Give Three advantages of using GUI based operating system over a command line interface **(3mks)**

**7. (a)** Name the control structure depicted by the flowchart below **(1 mk)**



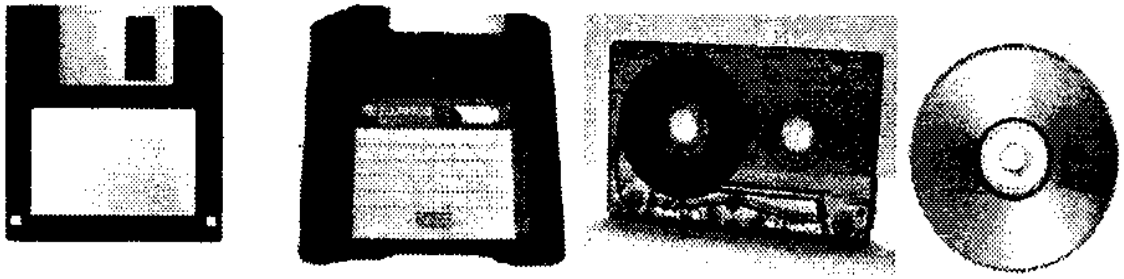
**(b)** Explain the following terms as used in system implementation **(2 mks)**

**(i) parallel running**

**ii) Direct change over**

**8. (a)** Name **two** methods of representing **signed** numbers in computers **(2 mks)**

**(b)** Identify the **four** types of storage media shown below. **(2 marks)**



i ii iii iv

**c)** Compare the storage device (i) and (iii) above. **(1 mark)**

**9.** Differentiate between **Random** and **indexed-sequential** file organization methods **(2mks)**

**10.** Name two types of relationships that can be applied in database design. **(2mks)**

**11.** Explain the following terms as used in word processing: **(3 mks)**

**a) Indenting**

**b) Alignment**

**c) Word wrap**

**12.** Outline **two** ways in which computers can be applied in hotels. **(2mks)**

**13.** **a)** Explain binary coded decimal code of data representation. **(1mk)**

**b)** Define the term firewall. **(1 mark)**

**14.** Arrange the following data units in ascending order of size.

BYTE, FILE, BIT, NIBBLE **(2mks)**

**15.** State two health issues that may result from prolonged use of computers. **(2mks)**

## SECTION B (60 MKS)

***ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS FROM THIS SECTION***

**16.** **a)** State the stage of program development in which: **(4mks)**

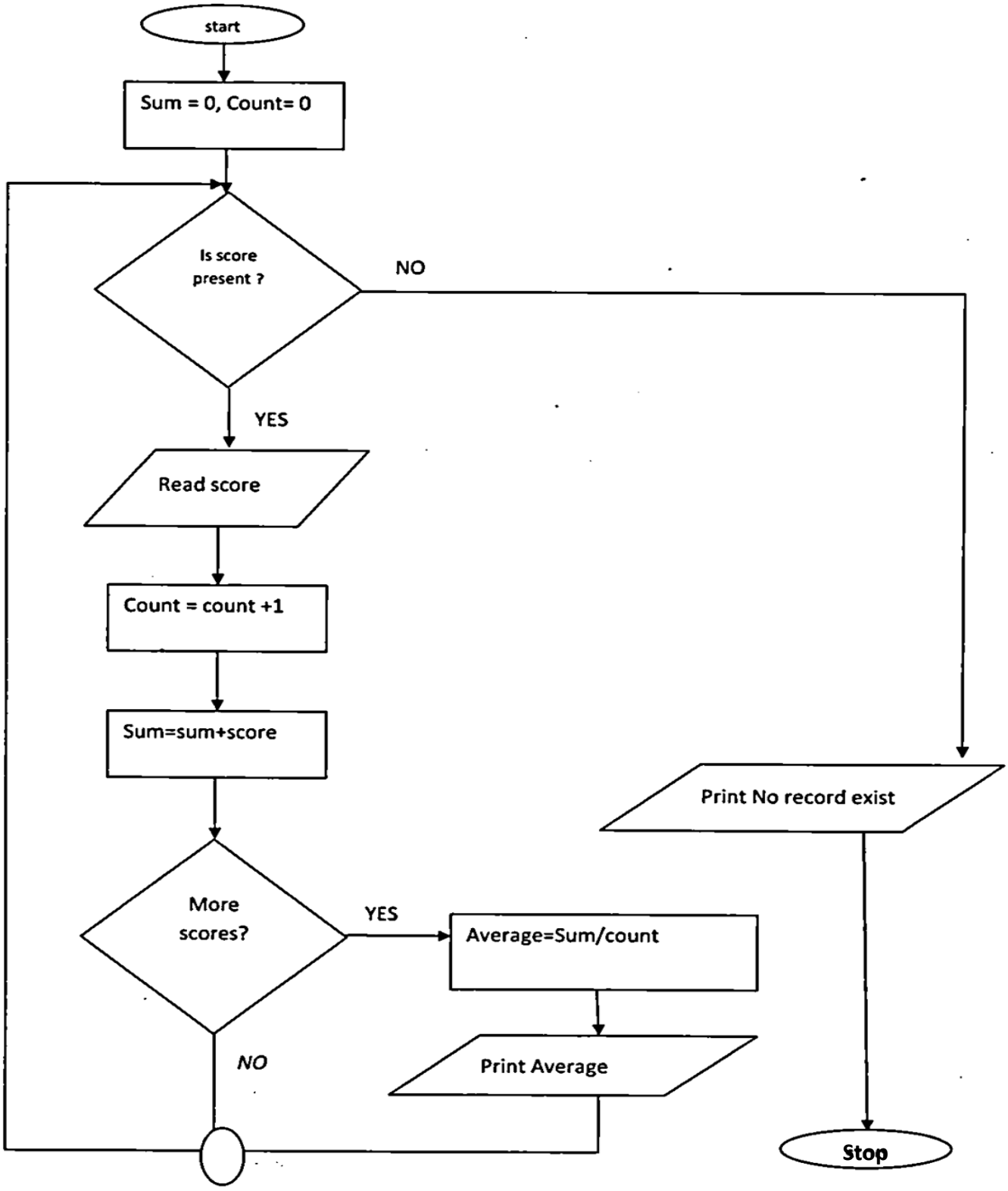
**i)** A flowchart would be drawn

**ii)** The programmer would check whether the program does as required program

**iii)** The user guide would be written

**iv)** The user guide would be written

Study the flowchart below and answer the questions that follow.




**b)** Translate the following flowchart into a pseudo code. **(8 marks)**

**c)** Assuming the following score are entered 0, 20 and 60 respectively what would be output from the flowchart. **(3 marks)**

**17. a)** Convert each of the following binary numbers to decimal equivalent given that the left most digit is a sign bit. **(4 marks)**

**i)** $00101101_2$

**ii)** $11001001_2$

**b)** Convert the decimal number 0.42 to 6 bit binary notation. **(4 marks)**

**a)** Using two's complement, subtract $11_{10}$ from $8_{10}$, leaving your answer in binary notation. **(3 marks)**

**d)** Perform the following binary operation. **(2 marks)**

$11001_2 + 1101_2 + 101_2$

**e)** Using place value method, convert $45_{10}$ to its binary equivalent. **(2 marks)**

**18. a)** What is virtual reality? **(1 mark)**

**b)** Explain the following interactive sensory equipment used in virtual reality. **(2 marks)**

**i)** Head gear

**ii)** Body suit

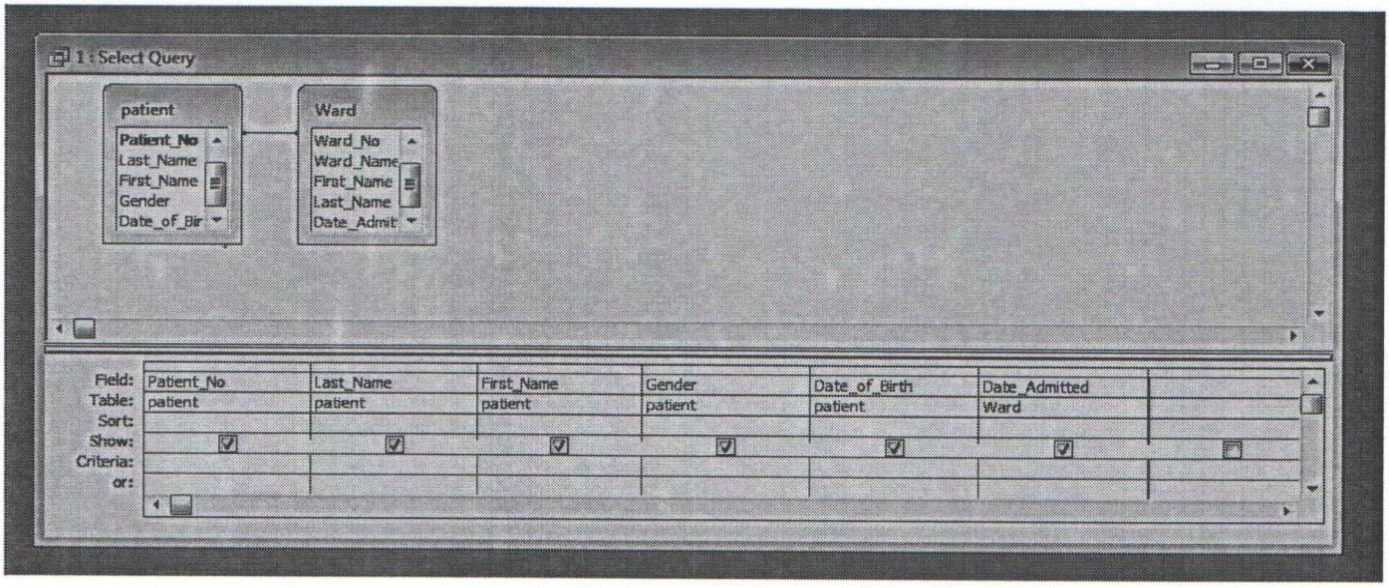
**c)** What is Artificial intelligence? **(1 mark)**

**d)** State and explain **three** components of an expert system. **(6 marks)**

**e)** Explain method of information gathering in system development. **(3 marks)**

**f)** List **two** application area of virtual reality. **(2 marks)**

**19. a)** The following is an extract of a select query (QBE) in Microsoft Access about hospital database



**i)** Other than select queries name **two** other queries used in databases. **(2 marks)**

**ii)** Write an expression that will return only those patients who are 20 years' old. **(3 marks)**

**b)** Differentiate between bold and unbold controls as used in database forms. **(2 marks)**

**c)** Give **two** reasons why input screens are better data entry designs than entering data directly into a table. **(2 marks)**

**d)** The figure below is an extract of a worksheet containing information on household items. Use it to answer the following questions:

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | **Item description** | **No of units** | **Cost per unit** | **Total cost** | | |
| 2 | Maize flour | 20 | 210 | | | |
| 3 | Tea leaves | 64 | 185 | | | |
| 4 | Sugar | 77 | 149 | | | |
| 5 | Salt | 28 | 25 | | | |

**i)** Write a formula to calculate the total cost of sugar. **(1 mark)**

**ii)** The prices of all items increased by 10% and the value 10% is placed in cell B8. Using cell addresses with absolute referencing only, write a formula to calculate the new unit of the salt. **(2 marks)**

**1.** Write a function to display the number of cells in which the cost per unit is equal to 25. **(2 marks)**

**iv)** Write a function to display the least total cost for all items. **(1 mark)**

**20.** A school computer laboratory is scheduled to undergo major renovations.

The lab is scheduled to receive new computer whose specifications are given below:-

Pentium IV 2.8GHz processor

40GB HDD

3½ FDD

256MB RAM

56 x CD ROM

17"SVGA TFT monitor

The computers are going to be networked and will be able to browse the internet.

**a)** Explain what is meant by the terms:- **(2 marks)**

**i)** FDD

**ii)** HDD

**iii)** SVGA

**iv)** TFT

**b)** The computer is to be networked, name **one** extra device that should be fitted on every computer to enable this to happen. **(1 mark)**

**c)** The computer is to receive internet facilities through the server on a dial; up system. Name and describe the function of a special device that needs to be connected to the server to complete the connection. **(1 mark)**

**d) i)** The school has to apply star topology to link up the computer. List **two** advantages of this type of topology. **(1 mark)**

**ii)** Name the central device used to connect the computers in this topology. **(1 mark)**

**e)** List **two** other types of topologies that the school could have opted for. **(1 mark)**

**f)** List **four** advantages of using a network. **(2 marks)**

**g) i)** Data transmission via the internet is done using a mode known as packet switching. Describe thisdata transmission mode. **(1mark)**

**ii)** Name **two** other modes of transmission. **(1 mark)**

**h) i)** The school's LAN is done using UTP cable. List **two** advantages of using this type of cable. **(1mark)**

**ii)** List **two** advantages of using fibre cable in networking. **(1 mark)**

**i)** Data flows in the school's LAN in a duplex manner. Discuss **two** other types of data transmission in network giving examples. **(2 marks**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 5

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME……**

**SCHOOL…… SIGN……**

**INDEX NO…… ADM NO……**

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

***1)*** *Indicate your name and index number at the right hand corner of each printout*

***2)*** *Write your name and index number on the* ***CD****/removable storage medium provided*

***3)*** *Write the name and version of the software used for each question attempted in the answer sheet provided*

***4)*** *Answer all the questions*

***5)*** *All questions carry equal marks*

***6)*** *Passwords should not be used while saving in the* ***CD****/removable storage Medium*

***7)*** *Marked printout of the answers on the sheet*

***8)*** *Arrange your printouts and staple them together*

***9)*** *Hand in all the printouts and the* ***CD****/removable storage medium used*

***10)*** *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*

**1.** The following table contains details of Baharini Girls school **(50MARKS)**

| ADMNO | Stud name | DOB | KCPE MARKS | RECEIPT NO | Fees Paid(kshs) | Fees Bal(kshs) | House No | House Name | House Capacity |
|---|---|---|---|---|---|---|---|---|---|
| 1001 | Alice K | 7/4/1999 | 380 | 101 | 20000 | 5000 | H20 | simba | 200 |
| 1050 | Lilly O | 2/3/2002 | 350 | 894 | 18000 | 7000 | S08 | chui | 150 |
| 1202 | Mary | 8/10/2000 | 400 | 500 | 23000 | 2000 | P30 | Kifaru | 180 |
| 1025 | Juliet | 4/4/2000 | 358 | 258 | 25000 | 0 | H20 | Simba | 200 |
| 1200 | Joan | 5/1/2001 | 398 | 259 | 15000 | 10000 | S08 | chui | 150 |
| 1278 | Milly | 3/4/1998 | 402 | 200 | 15000 | 10000 | H20 | simba | 200 |
| 1201 | Linet | 2/7/1998 | 356 | 205 | 20000 | 5000 | P30 | kifaru | 180 |
| 1203 | Lisper | 9/5/2001 | 403 | 209 | 25000 | 0 | S08 | chui | 150 |

**REQUIRED**

**a)** Create a database file that can be used to store the above data. Name the file Baharini school database. **(2mks)**

**b)** Create Three tables, one for **student details**, **Accounts table** and **dormitory table** **(11 mks)**

**c)** Create a relationship between the three tables **(3mks)**

**d)** Using appropriate forms, Enter the information given into the three tables **(15mks)**

**e)** Create a query for " **all students housed in Chui"** **(3mks)**

**f)** Design a "**current age query"** to display current ages of all the students **(5mks)**

**g)** Create a report "**Hefty Balances"** showing students with fees balances of more than 10000kshs **(3mks)**

**h)** Create a report to show all students admitted in the school **(3mks)**

**i)** Print,The **three tables**,**Hefty balances report** and **all students housed in Chui report** **(5mks)**

## *2.* QUESTION 2 *(50MARKS)*

Use a spreadsheet to manipulate data in the table below.

| Adm No | Name | Stream | Comp | Art | Bus | Eng | Mat | Student mean | Rank |
|---|---|---|---|---|---|---|---|---|---|
| C001 | Barasa | H | 56 | 45 | 36 | 56 | 26 | | |
| C002 | Wangila | K | 58 | 57 | 90 | 54 | 23 | | |
| C003 | Wafula | H | 48 | 56 | 54 | 45 | 25 | | |
| C004 | Wanjala | K | 78 | 95 | 78 | 46 | 24 | | |
| C005 | Kerubo | H | 49 | 86 | 68 | 35 | 52 | | |
| C006 | Akinyi | K | 56 | 45 | 25 | 63 | 54 | | |
| C007 | Odhiambo | H | 75 | 78 | 45 | 65 | 56 | | |
| C008 | Okunyuku | K | 89 | 69 | 65 | 53 | 51 | | |
| C009 | Nekesa | H | 69 | 58 | 45 | 54 | 52 | | |
| C010 | Simiyu | H | 85 | 46 | 78 | 52 | 53 | | |
| | TOTAL | | | | | | | | |
| | TOTAL | FOR H | | | | | | | |
| | TOTAL | FOR K | | | | | | | |

**a)** Enter the data in all bordered worksheet and auto fit all column. Save the workbook as **mark 1** **(15mks)**

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

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

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

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

**f)** Create a well labeled column chart on a different sheet to show the mean mark of every student. Save the workbook as **mark 2.** **(7mks)**

**g)** Using **mark1,** use subtotals to find the average mark for each subject per stream. Save the workbook as **mark 3** **(7mks)**

**h)** Print **mark 1,mark 2** and the **chart** **(3mks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 6

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- ✓ *This paper consists of two section **A** and **B***
- ✓ *Answer all questions in section **A** (40 marks)*
- ✓ *Answer question 16 **(Compulsory)** and any other **THREE** questions in section **B**.*

**FOR EXAMINERS USE ONLY**

| SECTION | QUESTION | SCORE |
|---|---|---|
| A | 1-15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | | |

## SECTION A (40 MARKS)

**Answer ALL the questions in this section**

**1.** Define the following terms **(4mks)**

**i)** Multiplexing

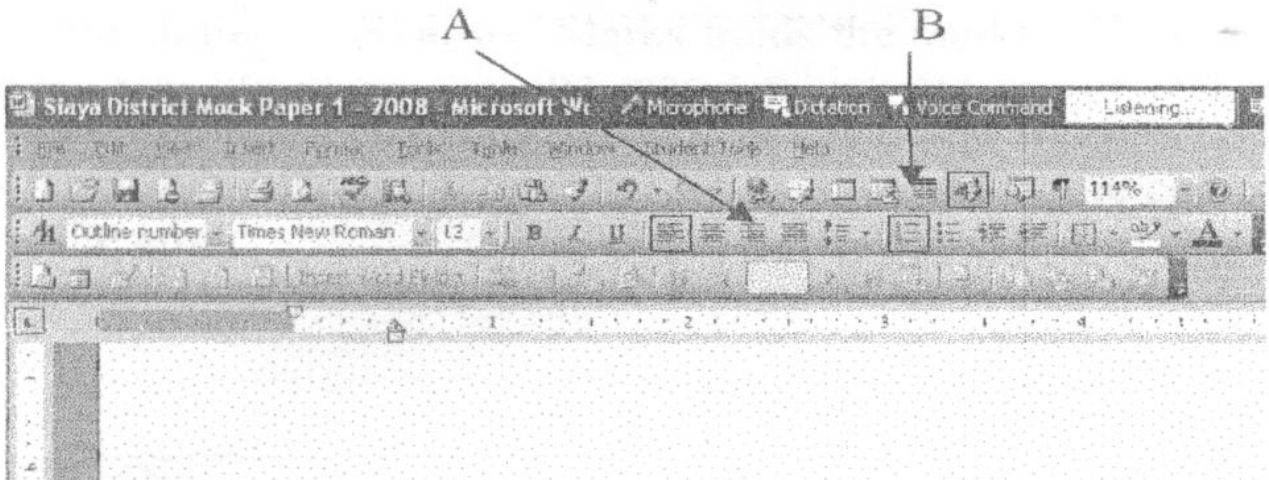
**ii)** Baseband signal

**2.** Explain the difference between digital signal and analog signal in data communication **(2mks)**

**3.** List down two types of computer viruses **(2mks)**

**4.** Below is a graphical representation of a section of a Microsoft words application window.

Use it to answer the question that follow.




Give the uses of the icons labeled A and B **(2mks)**

**5.** Define the following terms as used in disk management

**i)** Partitioning **(2mks)**

**ii)** Defragmentation **(2mks)**

**6.** State three ways in which your school librarian can use a computer **(3mks)**

**7.** **i)** Write the acronym UPS in full? **(1mk)**

**ii)** Explain the uses of UPS? **(1mk)**

**8.** **a)** Give two possible ways of fitting the document in one page **(2mks)**

b) The shopkeeper one day switched on the computer and experienced a number of problems with windows operating system that he had installed. The problems included failure to load the operating system during the booting. After several trials of switching on the computer booting. It hand so often alongside abnormal restarting. State any two possible causes for the computer's behavior. **(2mks)**

**9.** Differentiate between real time processing and batch processing giving examples where each could be used. **(4mks)**

**10.** In Kenya Tea Packers Company several people are employed as record clerks., typists and messenger. The company intends to introduce a computerized system in all the departments. Suggest three reasons that would make workers unhappy with the new system. **(3mks)**

**11.** Give two advantages of an electronic spreadsheet over traditional analysis ledger sheet **(2mks)**

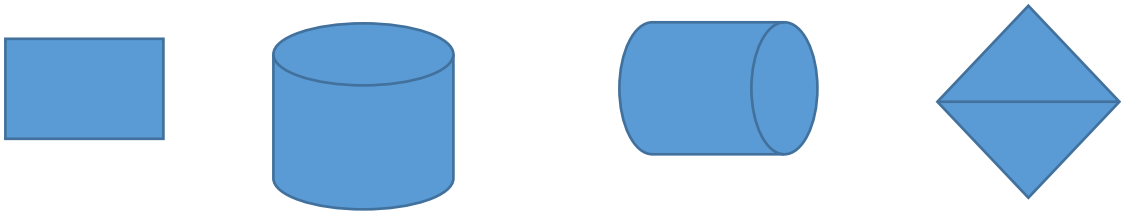
**12.** Explain the following terms as used in information Technology with reference to software purchase:-

**i)** User friendliness **(1mk)**

**ii)** Authenticity **(1mk)**

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

**14.** Give the names of the following system flowchart symbols **(2mks)**



A B C D

**15.** State any two features of a user friendly program **(2mks)**

## SECTION B (60 MARKS)

***Answer question 16 and any other three questions from this section***

**16.** a) State three qualities of a good psecudocode? **(3mks)**

b) i) State the 3 translators used in programming **(3mks)**

**ii)** List two examples of;

i. Third generation languages **(1mk)**

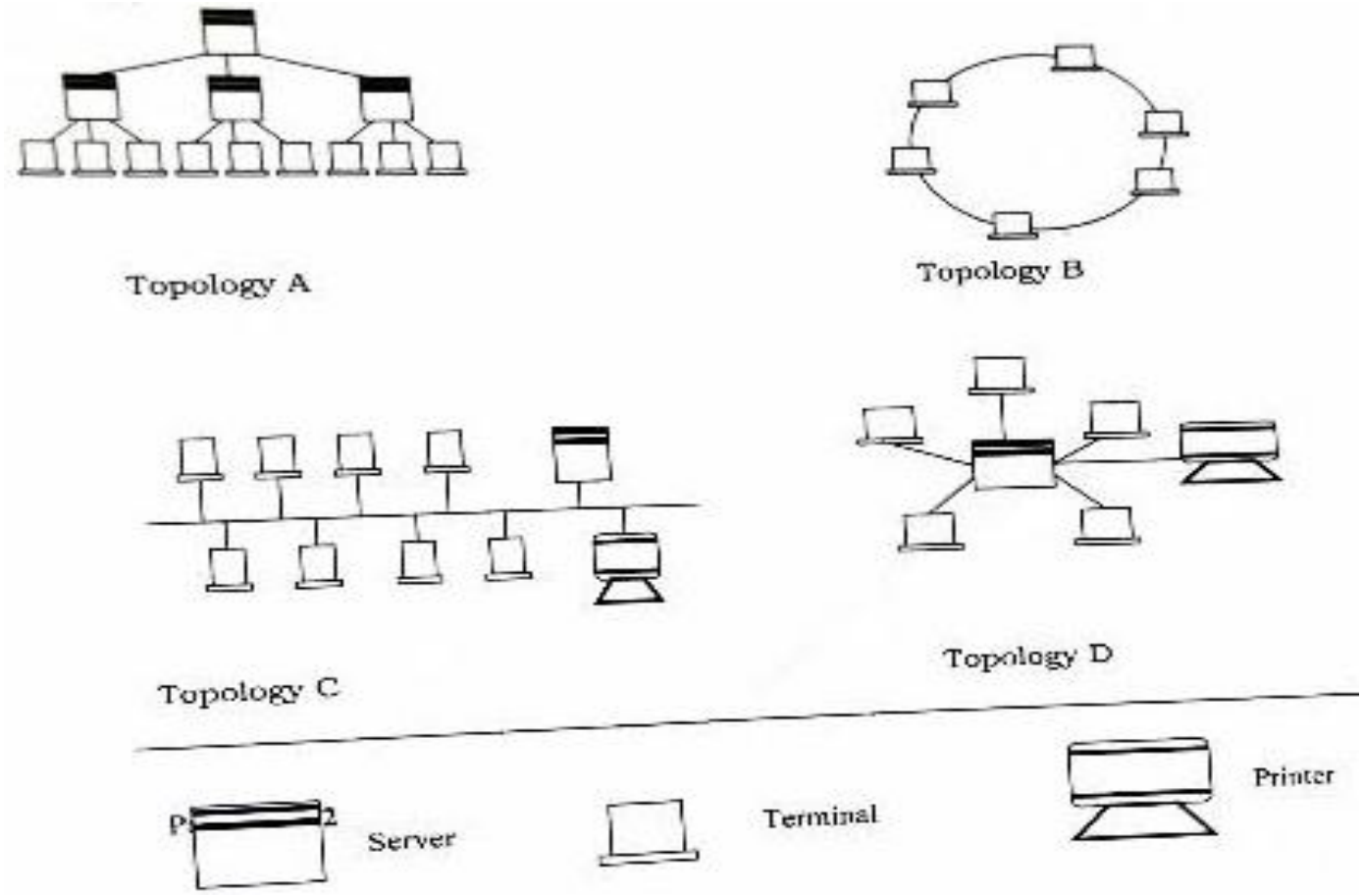
ii. Object oriented languages **(1mk)**

c) Draw a flowchart that was used to come up with the following pseud code **(7mks)**

Start
N=0
X=0
While n < 3
Repeat
X = X + 1

While x < 2
N = N +1
End while
Stop

**17.** a) The diagram below shows four common network topologies A, B, C and D.




**i)** Name the network topologies A, B, C and D **(4mks)**

**ii)** Explain what happens if server X topology A fails **(1mk)**

**iii)** List two problems associated with network topology B **(2mks)**

**iv)** List two disadvantages associated with network topology D **(2mks)**

**b)** Differentiate between Internet and World Wide Web. **(2mks)**

**c)** Convert the following binary number, 11001011.001 into decimal form. **(4mks)**

**18.** a) Human activity systems are said to be soft systems. Give therereasons why they are said to be so **(3mks)**

**b)** What are hard information systems **(2mks)**

**c)** Discuss any five characteristics of a system **(10mks)**

**19. a)** One of the functions of an operating system is job scheduling. Explain what is meant by job scheduling. **(2mks)**

**b)** List and explain three types of user interfaces. **(6mks)**

**c)** Describe the following categories of software **(4mks)**

**i)** Firmware

**ii)** Proprietary software

**d)** A new company ABC intends to go into business of desktop publishing. Advice the company on three computer hardware specification features to consider as a measure of enhancing performance. **(3mks)**

**20 a)** Briefly explain the following terms as used in spreadsheet **(4mks)**

**i)** Cell

**ii)** Range

**iii)** Value

Function

b) List three paragraph formatting features of word processors **(3mks)**

**c)** Explain the difference between the printing of multiple pages and multiple copies **(2mks)**

d) Distinguish between a worksheet and a work book **(2mks)**

**e)** The following is an excel worksheet showing the performance of students in Tana class.

| **A** | **B** **Adam** | **C** **Student name** | **D Cat 1/50** | **E Cat 2/50** | **F** **Total / 40** | **G** **Exam / 60** | **H** **Total** |
|---|---|---|---|---|---|---|---|
| 1 | 4321 | DollineMbesa | 30 | 28 | (a) | 45 | (b) |
| 2 | 4333 | SelinaMbugua | 20 | 29 | | 55 | |
| 3 | 4330 | Winnie Wanjema | 25 | 26 | | 50 | |
| 4 | 4322 | MagaretWambari | 27 | 24 | | 43 | |
| 5 | 4324 | FaniNjuguna | 28 | 24 | | 42 | |
| 6 | | Maximum | (c) | | | | |
| 7 | | Minimum | (d) | | | | |
| 8 | | Average | (e) | | | | |
| 9 | | | | | | | |

Using the above worksheet write the following formula to calculate the values in cells labeled **(4mks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 6

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**451/1**
**COMPUTER STUDIES**
**PAPER 2**
**PRACTICAL**

**INSTRUCTIONS TO CANDIDATES**

- ✓ *Type your name and admission number at the top right hand corner of each printout.*
- ✓ *Write the name and version of the software used for each question attempted in the answer sheet.*
- ✓ *Passwords should not be used while saving in the diskettes.*
- ✓ *Answer all questions*
- ✓ *All questions carry equal marks*
- ✓ *All answers must be saved in your diskette. Make printouts of the answers on the answer sheets provided.*
- ✓ *Hand in all the printout and the diskette*
- ✓ *Candidates may be penalized for not following instruction given in this pager*
- ✓ *Arrange your printout and staple them together.*

## QUESTION 1

**1.** Table 1, table 2 and table 3 are extracts of records, kept in a carpentry shop. Use the information to answer the questions that follow;

| CAPENTER _ID | CAPENTER NAME |
|---|---|
| CAP_001 | JAMES |
| CAP_002 | JOHN |
| CAP_003 | ALEX |
| CAP_004 | ISAAC |
| CAP_005 | MAURICE |

**Carpenter Table**

| CUSTOMER _ID | CUSTOMER NAME |
|---|---|
| CUST_01 | MARY K. |
| CUST_02 | DIANA K. |
| CUST_03 | ALEX N. |
| CUST_04 | MARTHA K. |
| CUST_05 | SARAH W. |
| CUST_06 | JOHNSON G. |

**Customer Table**

**Order Table**

| CARPENTER _ID | CUSTOMER _ID | ORDER _NO | ITEM ORDERED | MONTH | AMOUNT |
|---|---|---|---|---|---|
| CAP_001 | CUST _01 | 1721 | Bench | January | 18,000 |
| CAP_002 | CUST _02 | 1722 | Coffee table | January | 25,000 |
| CAP_003 | CUST _03 | 1723 | Office table | January | 10,000 |
| CAP_004 | CUST _04 | 1724 | Single bed | January | 18,000 |
| CAP_005 | CUST _05 | 1725 | Arm chair | January | 60,000 |
| CAP_001 | CUST _01 | 1726 | Double bed | February | 75,000 |
| CAP_002 | CUST _04 | 1727 | Dining table | February | 85,000 |
| CAP_004 | CUST _03 | 1728 | Arm chair | February | 60,000 |
| CAP_001 | CUST _02 | 1729 | Double decker bed | February | 72,000 |
| CAP_002 | CUST _06 | 1730 | Kitchen table | February | 82,000 |

| | | | | | |
|---|---|---|---|---|---|
| CAP_004 | CUST _02 | 1731 | Bench | March | 18,000 |
| CAP_003 | CUST _06 | 1732 | bench | march | 18,000 |

**a)** i) Using database application package, create a database file named;

**CARPENTER INFORMATION** **(1mk)**

ii) Create three tables named **Carpenter Table, Customer Table** and **Order Table that will be used to store the above data.** **(10mks)**

iii) Set the primary key for the tables **(2mks)**

iv) Create relationship among the tables **(2mks)**

**b)** i) Create a data entry form for each table **(3mks)**

ii) Enter the data in **Carpenter Table, Customer Table and Order Table** respectively **(11mks)**

**c)** i) Create a query named **individual income** to display the amount received from each customer every month. **(4mks)**

ii) Create a database object that computers Total income for each month. Save the query as **Totalincomenomnthly.** **(6mks)**

**d)** Create a query named **loyalty** to compute the total number of orders made by each customer over the three months. **(3mks)**

**e)** Create a report to display order details, save the report as Order report **(4mks)**

**f)** Print the three tables and the report **(4mks)**

## QUESTION 2

Use a spreadsheet to manipulate data in the table below.

| Adm No | Name | Stream | Comp | Art | Bus | Eng | Mat | Student mean | Rank |
|---|---|---|---|---|---|---|---|---|---|
| C001 | Barasa | H | 56 | 45 | 36 | 56 | 26 | | |
| C002 | Wangila | K | 58 | 57 | 90 | 54 | 23 | | |
| C003 | Wafula | H | 48 | 56 | 54 | 45 | 25 | | |
| C004 | Wanjala | K | 78 | 95 | 78 | 46 | 24 | | |
| C005 | Kerubo | H | 49 | 86 | 68 | 35 | 52 | | |
| C006 | Akinyi | K | 56 | 45 | 25 | 63 | 54 | | |
| C007 | Odhiambo | H | 75 | 78 | 45 | 65 | 56 | | |
| C008 | Okunyuku | K | 89 | 69 | 65 | 53 | 51 | | |
| C009 | Nekesa | H | 69 | 58 | 45 | 54 | 52 | | |
| C010 | Simiyu | H | 85 | 46 | 78 | 52 | 53 | | |
| | TOTAL | | | | | | | | |
| | TOTAL | FOR H | | | | | | | |
| | TOTAL | FOR K | | | | | | | |

**i)** Enter the data in all bordered worksheet and auto fit all column. Save the workbook as **mark 1** **(15mks)**

**j)** Find the total marks for each subject **(3mks)**

**k)** Find total for each subject per stream using a function **(5mks)**

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

**m)** Rank mean student in descending order using the mean **(5mks)**

**n)** Create a well labeled column chart on a different sheet to show the mean mark of every student. Save the workbook as **mark 2.** **(7mks)**

**o)** Using **mark1,** use subtotals to find the average mark for each subject per stream. Save the workbook as **mark 3** **(7mks)**

**p)** Print **mark 1,mark 2** and the **chart**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 7

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**Instruction to Candidates.**

***(a)*** *Write your Name and Index Number in the spaces provided at the top of this paper.*
***(b)*** *Sign and write the date of examination in the spaces provided above.*
***(c)*** *This paper consists of **TWO** sections; **A** and **B**.*
***(d)*** *Answer ALL the questions in Section **A**.*
***(e)*** *Answer question **16** and any other **THREE** questions from Section **B**.*
***(f)*** *All answers should be written in the spaces provided on the question paper.*

**FOR EXAMINER'S USE ONLY.**

| Section | Question | Score |
|---|---|---|
| A | 1 - 15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | TOTAL | |

## SECTION A (40 MARKS)

***Answer ALL Questions from this section***

**1.** State three reasons why it is difficult to control, detect and prevent computer crimes (**3marks)**

**2.** Mr. Kala wants to buy a printer to use in his automobile workshop for printing sales orders in duplicates. He has approached you for advice. What printer should he buy? **(1 Mark)**

Give a reason for your answer. **(1mark)**

**3.** Last year 2020 when corona virus was declared a pandemic internationally most companies allowed employees to telework or work at home and communicate with the office using the Internet. List the hardware, software and services required to access and use the Internet. **3 Mks)**

**4.** Using a well labelled diagram, describe the fetch and execute cycle. **(3 Marks)**

**5.** Ventilation is an important practice in the computer lab because it enhances proper circulation of air. Outline **three** ways in which air is regulated in the computer room. **(3mks )**

**6.** Differentiate between COM ports and LPT ports. **(2 marks )**

**7.** State any two advantages of the artificial intelligence. **(2 Marks)**

**8.** (a) The word COM appears several times in an essay. Jane would like to change the word to COMPUTER. Advise her on how she can accomplish this task using a word processor. **(2 Mks)**

**9.** Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used serial file organization. How are files organized on a storage medium using this method? **(1 mark)**

**(b)** List two advantages offered by this type of file organization. **(2marks)**

**10.** (a) Rose wants to send an email to Jack. Explain two items that must be present for the mail to be sent. **(2 Marks)**

**(b) (i)** Define the term network protocol **(1 Mark)**

**(ii)** Name any **two** examples of network protocols **(1 Mark)**

**11.** (a) What is the importance of layering in DTP? **(1 Mark)**

(**b)** Distinguish between column guides and margin guides as used in DTP. **(2 Marks)**

**12.** Study the work sheet below and answer the questions that follow:

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | **MWALIMU CONSULTANCY MIXED HIGH SCHOOL** | | | | | |
| **3** | **ADM. NO** | **NAME** | **MATHS** | **ENGLISH** | **AVERAGE** | **RANK** |
| 4 | 1001 | Akinyi | 78 | 85 | | |
| 5 | 1002 | Kamau | 89 | 77 | | |
| 6 | 1003 | Leila | 45 | 46 | | |
| 7 | 1004 | Taita | 67 | 69 | | |
| 8 | 1005 | Mosomtany | 98 | 67 | | |
| | | | | | | |
| 9 | **Highest Score** | | | | | |
| 10 | **Lowest Score** | | | | | |
| 11 | **Average Score** | | | | | |

**(a)** Write a formula that would be entered in cell E4 to compute the average score for Akinyi. **(1 Mk)**

**(b)** Write down a formula that used to return the rank of Leila based on average score. **(1 Mark)**

**(c)** Write down a formula that would return the number of students whose score in English is below 70. **(1 Mark)**

**13.** The manager of a company wants to improve the security of the computer network. She has decided to use authentication techniques so that employees can identify themselves to the system. Name **two** authentication techniques and describe how each technique would help keep the data more secure. **(3 Marks)**

**14.** Mary who works as a systems analyst for JeroKin investments has produced documentation for a newly developed system. State three reasons why both user and technical documentation are needed. (**3 Marks)**

**15.** Environmentalists plan to test a fast flowing river for pollution. State two advantages of using a computer to do this rather than doing it manually. **(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 internal 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 **(7mks)**

**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**.(2marks)**

**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 us 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**(3m)**

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 Intenger |
| Order Date | Date/Time | |

| | | |
|---|---|---|
| Supply Date | Date/Time | |
| Product code | Tex | 5 |
| Customer ID | Number | Long Integer |
| Delivery address | Text | 30 |
| Product Type | Tex | 15 |
| Product Name | Tex | 10 |
| Quantity Ordered | Number | Long integer |
| Product Prize | 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 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 7

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**451/2**

## COMPUTER STUDIES

**Paper 2 (Practical)**

**TIME: 2½ HOURS**

**INSTRUCTIONS TO CANDIDATES**

1. *Write your name and index number in the spaces provided above.*
2. *Write the name and version of the software used for each question attempted in the answer sheet.*
3. *Answer all questions.*
4. *All questions carry equal marks.*
5. *Hand in all the printouts and the soft copy of your work on **CD**.*

**QUESTIONS**

1. (a)(i) The extract below shows a spreadsheet used to compute the toll charges for a highway based on the type of vehicle, tonnage and charge per kilometer for usage.

| | HIGHWAY TOLL CHARGES | | | | | |
|---|---|---|---|---|---|---|
| **Registration** | **Vehicle Type** | **Weight** | **Distance** | **NormalCharge** | **Penalty Charge** | ***Total*** |
| **KCY 789 M** | **PickUp** | **6** | **12** | | | |
| **KCR 769 L** | **Car** | **4** | **40** | | | |
| **KCF 724 C** | **PickUp** | **6** | **32** | | | |
| **KCM 737 N** | **Truck** | **12** | **25** | | | |
| **KCA 745 W** | **Lorry** | **20** | **28** | | | |
| **KCP 756 H** | **Truck** | **10** | **12** | | | |
| **KCU 778 J** | **Car** | **4** | **8** | | | |
| **KCZ 701 A** | **PickUp** | **8** | **25** | | | |
| **KCB 781 E** | **Car** | **6** | **4** | | | |
| **KCV 743 H** | **PickUp** | **4** | **20** | | | |
| **KCQ 735 X** | **Truck** | **8** | **32** | | | |
| **KCT 721 K** | **Lorry** | **10** | **25** | | | |
| **KCD 792 V** | **Truck** | **12** | **28** | | | |
| **KCZ 784 P** | **Car** | **6** | **12** | | | |
| **KCB 756 C** | **Truck** | **10** | **8** | | | |
| **KCE 734 D** | **Car** | **4** | **25** | | | |
| **KCF779 E** | **PickUp** | **6** | **32** | | | |
| **KCG 700 F** | **Lorry** | **12** | **25** | | | |
| **KCH 723 K** | **Truck** | **20** | **28** | | | |
| **KCJ 711 W** | **PickUp** | **10** | **12** | | | |
| **KCR 712 D** | **Car** | **4** | **8** | | | |
| **KCD 774 B** | **PickUp** | **8** | **25** | | | |
| **KCS 756 M** | **Truck** | **6** | **4** | | | |
| **KCA 745 W** | **Car** | **4** | **20** | | | |
| | | | ***Total*** | | | |

**(ii)** Create a workbook and save the workbook as toll. **(2 Marks)**

**(iii)**Fill the data in the worksheet1 and rename the worksheet as tollOriginal. **(14 Marks)**

**(b)(i)**The NormalCharge column is calculated based on the table below.

| Vehicle Type | Max AllowedWeight(Tns) |
|---|---|
| PickUp | 6 |
| Car | 4 |
| Truck | 8 |
| Lorry | 10 |

(ii) The PenaltyCharge column is calculated based on the table below. The penalty is based on any weight above Maximum allowed weight for a vehicle type for every kilometer of the the usage.

**( 8 Marks)**

| Vehicle Type | Penalty Charge (Ksh)per Km |
|---|---|
| PickUp | 10 |
| Car | 5 |
| Truck | 15 |
| Lorry | 20 |

**(iii)** The TotalCharge is based on summation of NormalCharge and PenultyCharge . Create a column TotalCharge and use a function to Calculate the Total Charge **(2 Marks)**

**(iv)** Create the Running Totals for Normal Charge,Penulty Charge And Totalcharge **(4 Marks)**

**(b)(i)**Copy The data in the OriginalToll to another worksheet rename the workshhet as Sorted( 1 Mark)

(ii)Sort the Data is ascending order of Vehicle type Sorted worksheet. **(4 Marks)**

**(iii)**Create subtotals based on the vehicle Type **(4 Marks)**

**(iv)** Draw a column chart based on The Vehicle Type subtotals and Total Charge **(8 Marks)**

**2. a)** Create a database called **Aberdare bottles ltd** and create the following tables **(15 marks)**

**Table 1: Employee**

| Employee_ID | EmployeeName | Department | YearOfEmployment |
|---|---|---|---|
| 101 | Kibet Arap Kamau | Human resource | 1985 |

| | | | |
|---|---|---|---|
| 102 | Janet Atieno | Procurement | 1990 |
| 450 | Kimani Koigu | Accounts | 2000 |
| 891 | Moraa Kerubo | Human resource | 2010 |

**Table 2: Sales**

| ProductName | Employee_ID | ProductID | SalesAmount | Salary |
|---|---|---|---|---|
| Tea leaves | 101 | Xc101 | 5000 | |
| cocoa | 102 | Xp105 | 15500 | |
| coffee | 450 | Xvb11 | 9500 | |
| Chocolate | 891 | X56po | 30000 | |

**Table 3: Department**

| Employee_ID | Department_Name | HeadOfDepartment | NoOfEmployees |
|---|---|---|---|
| 101 | Human resource | B.N. Komu | 52 |
| 102 | Procurement | J.K. Wanjiru | 12 |
| 450 | Accounts | P.G. Otindo | 20 |
| 891 | Human resource | M.M. Jerotich | 10 |

**i)** Create **relationship** among the tables **(2 marks)**

**ii)** Create **three** input screens **(forms)** and use them to enter the data into the tables above**(6 marks)**

**iii)** Create a query called **Start_K** and use it to display **EmployeeName** that start with letter **K**

**(3 marks)**

**iv)** Display the **no of years** an employee has worked given that the current year is 2018. Save **the report** as **AGE.** **(3 marks)**

**v)** Create a query called **Yote** to display the following fields **(2 marks)**

- **Employee_ID**
- **EmployeeName**
- **Department_Name**
- **ProductName**
- **Salary**
- **HeadOfDepartment**

**vi)** Copy Yote query (**in v above**) and save the new query as **MPYA**:- **(1 marks)**

**Use MPYA query to**

- ✓ Calculate the salary given that: salary is 10% of the S**alesAmount** **(2 marks)**
- ✓ Display salary in ascending order **(2 marks)**
- ✓ Display employees from **human resource** department whose **SalesAmount** is **greater than 12000.** **(2 marks)**

**vii)** Create a form called **AberdareForm** using **Yote query** (**in v above**) and use it to answer the questions below:-

- ✓ Count no of employees **(2 marks).**
- ✓ Add a title of the form as **"Aberdare bottles ltd-2018"** **(2 marks)**
- ✓ Insert **date and time** on the form header use **( =NOW( ) )** **(2 marks)**

**viii)** **Print** Age, Sales table, and AberdareForm **(3 marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 8

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**Instruction to candidates**

*(a) Write your name and index number in the spaces provided above*

***(b)*** *This paper consists of* ***two*** *sections* ***A*** *and* ***B***

*(c) Answer* ***ALL*** *questions in section* ***A***

*(d) Answer question 16 and any other* ***THREE*** *questions from section* ***B***

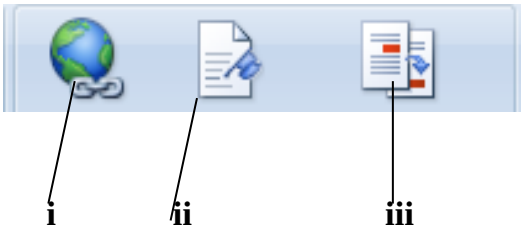
**For Examiner's Use Only**

| SECTION | QUSTIONS | CANDIDATE'S SCORE |
|---|---|---|
| A | 1 -15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | **TOTAL SCORE** | |

## SECTION A

*Answer **ALL** questions*

**1.** Name the parts labelled in the diagram below of a page layout properties **[3 marks]**




**2.** Explain briefly how an uninterruptible power supply (UPS) may help to protect a computer system and its data. **[1 mark]**

**3.** How is data verification different from data validation? **[1 mark]**

Give one example of data validation technique **[1 mark]**

Give one example of data verification technique **[1 mark]**

**4.** What kind of program is normally contained in a ROM chip and Explain briefly the main purpose of such a program. **[2 marks]**

**5.** Distinguish between system software and application software. **[2 mark]**

**6.** Give the similarities between optical mark readers and optical character read**ers. [2 marks]**

**7.** In word processing, distinguish between text insertion and overtyping. **[2 marks]**

**8.** Explain, using examples where appropriate, the meaning of these computer terms.

**(i)** interrupt **[2 Marks]**

**(ii)** buffer **[2 Marks]**

**9.** Explain the following spreadsheet concepts:

**(i)** Automatic Recalculation. **[1 mark]**

**(ii)**What if analysis **[1 mark]**

**10.** Explain briefly why the advancement of computer technology has caused environmental hazards. **[2 marks]**

**(i)**What is telecommuting? **[1 mark]**

**(ii)State four** benefits of telecommuting. **[2 marks]**

**(ii)**How is e-commerce different from e-business? [**1 mark]**

**11.** (i)What is a coprocessor? **[1 mark]**

**(ii)**How does parallel processing work? **[1 mark]**

**(iii)**What is pipelining? **[1 mark]**

**12.** (i)What is a driver program? **[1 mark]**

**13.** (ii). Give **one** example of hardware device that may serve more than one purpose (e.g., input and output). **[2 marks]**

**14.** (i)How is a patent different from a trademark? **[2 marks]**

(ii)What is the difference between unauthorized access and unauthorized use? ***[2 marks]***

**15.** (i)What is a workstation? **[½ mark]**

**(ii)**What is a server? **[½ mark]**

## SECTION B

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

**16.** (a) Explain the three control structures in programming **[3 Marks]**

(b)State and describe three types of error can occur in programming **[3 Marks]**

(c)(i) State **two** differences between a compiler and an interpreter **[2 marks]**

(ii)Give **one** advantage of compliers over interpreters **[1 mark]**

(iii)Give **one** advantage of interpreters over compliers **[1 mark]**

(d) Draw the corresponding flowchart for the pseudo code below. **[4 marks]**

Assign 0 to A,
Repeat adding 1 to A,
Until A is greater than or equal to 5,
Print A.

**17.** (a) How is peer-to-peer network different from client/server network, considering how programs, data and information are stored? **[2 marks]**

(b) (i) Give **three** advantages of optical fibers over twisted-pair wires and coaxial cables. **[3 marks]**

(ii) Suggest **two** disadvantages of optical fibers. **[1 mark]**

(c) (i)Compare asynchronous and synchronous transmission. **[1 mark]**

| asynchronous | synchronous |
|---|---|
| | |
| | |

(ii) Give one disadvantage of the c(i) above **[1 mark]**

| asynchronous | synchronous |
|---|---|
| | |

(d) (i)Compare the following Ring ,star and bus network topologies. **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |
| | | |

(ii)Give one **disadvantage** of each **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |

(iii)Draw a diagram t represent the ring ,star and bus topologies **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |

(e) (i) Explain the term upload **[½ mark]**

(ii)If a 56K modem is operating at full speed, how long does it take to download a 1-MBfile?

**[2 marks]**

**18. (a**).Describe the role of the systems analyst. **[2 marks]**

**(b).**Describe 2 techniques used by the systems analyst in requirements **specification.[2 marks]**

(b).In the software development process, what happens at the analysis stage? **[1 Mark]**

(c) Describe fully what is meant by the term *top-down design*? **[3 Marks]**

(d) The process of developing such software is an iterative process. What does *iterative* mean?

**[1 Mark]**

(e)(i) What are CASE tools? **[1 Mark]**

(ii)What is the purpose of CASE tools? **[1 Mark]**

(iii) What does *CASE* stand for? **[1 Mark**]

(f) Identify ant two activities within the design stage of the software development process **[3 Marks]**

**19 (a**).Describe four functions of a single user operating system. [**4 Marks]**

(b) Explain the need for an operating system to have a command language interpreter. **[1 Mark]**

(c) Give 4 examples of the many processes which can be initiated by a user and which are then carried out by the operating system. **[4 Marks]**

(d) What happens if a command entered by the user is not recognized by the operating system? **[1 Mark]**

(e)Describe an advantage and a disadvantage to storing the operating system in RAM rather than in ROM? **[2 Marks]**

(g) Describe three features that a **network operating system** must have that a single user operating system does not need. **[3 Marks]**

**20. (a)** Explain two reasons why computers use the binary system? **[2 Marks]**

(b)What is meant by the term *word* in the phrase *16-bit word computer*? **[1 Mark]**

(c) What is the decimal value of the largest integer that can be represented by a byte in a computer which deals only with positive numbers? **[1 Mark]**

(d )What does the acronym ASCII stand for and what is ASCII? **[2 Marks]**

(e) Complete the following table and note that no marks will be awarded for answers with missing or unclear working. **[6 Marks]**

| BIN | DEC | HEX |
|---|---|---|
| | 45 | |
| | | B6 |
| 11001 | | |

**THIS IS THE LAST PRINTED PAGE**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 8

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

## INSTRUCTIONS TO CANDIDATES

***1)*** *Indicate your name and index number at the right hand corner of each printout*
***2)*** *Write your name and index number on the CD/removable storage medium provided*
***3)*** *Write the name and version of the software used for each question attempted in the answer sheet provided*
***4)*** *Answer all the questions, All questions carry equal marks*
***5)*** *This paper consists of **6** printed pages.* ***Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***
***6)*** *Passwords should not be used while saving in the CD/removable storage Medium*
***7)*** *Marked printout of the answers on the sheet*
***8)*** *Hand in all the printouts and the CD/removable storage medium used*

**For Official Use Only**

| QUESTION | MAX SCORE | SCORE |
|---|---|---|
| ONE | 50 | |
| TWO | 50 | |
| **TOTAL** | **100** | |

**1.** KenTelcom is a company that engages in the sales of the following Mobile service providers: Faiba, Gateway, Vodafone and SAF. The company uses sales representatives who operate at various regions in Nairobi town. Each sales representative presents monthly sales to the manager (Values are in Ksh).

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| | **Mobile _ Accessories Sales LTD** | | | | | |
| | | **Product type** | | | | |
| | **Sales Rep.** | **Faiba** | **Gateway** | **Vodafone** | **SAF** | **Total Sales** |
| | James | 24000 | 37500 | 39500 | 49500 | |
| | Peter | 15000 | 26500 | 21500 | 25500 | |
| | Beryl | 5500 | 14800 | 3500 | 16500 | |
| | Melanie | 7000 | 15500 | 14500 | 64500 | |
| | Mariana | 11000 | 69000 | 2200 | 64500 | |
| | Maggi | 33500 | 12000 | 14500 | 23500 | |
| | Valentine | 15500 | 80000 | 17200 | 23500 | |

**(a)** Using spreadsheet package,

(i) Enter the information given in the table above into a worksheet. Save workbook as **KenTelcomREPS** and rename sheet 1 as **Sales.** **(20 marks)**

(ii) Validate all the cells in the Product Type columns to allow entry of numeric data from 0 to 80,000 **only**. A message, Invalid data!: should be displayed whenever a cell is typed with non-compliant data.(3 marks)

**(b)** Using formulae, determine the;

**(i)** Total sales for each Sales representative **(2 marks)**

**(ii)** Product type Total Sales for each provider. **(2 marks)**

**(c)** Each sales person earns Bonus points for the sales of each product type based on the following criteria.

- 1 point for every sh. 50 for Faiba,
- 2 points for every sh. 60 for Gateway,
- 3 point for every sh. 50 for Vodafone,
- 2 point for every sh. 60 for SAF.

**(d)** Insert a column **Bonus Points** and compute the points of each sales person **(5 marks)**

**(e)** Insert a blank column **Awards** and based on the Bonus points earned by each sales representative, use a function to display the remarks on Awards as follows: **(5 marks)**

| **Total Sales** | **Awards** |
|---|---|
| 2,500 and above | Cash |
| More than 1,000 and less than 2,500 | Vouchers |
| 1,000 and below | try again |

**(f)** Format the figures in worksheet as follows: **(3marks)**

**b)** Title and subtitle:

**(a)** Double underline

**(b)** Font type – Algerian

**(c)** Font size

**(g)** Rotate, all the Product Type heading labels in the worksheet to $-90^0$. **(1 mark)**

**(h)** Generate a column chart to represent the Total sales for each sales representative. Label your chart accordingly and place it in a new worksheet renamed as CHART. **(7marks)**

**(i)** Print Sales and CHART **(2marks)**

**2.** The table below shows list of students admitted to Mangu High School under different sponsors.

**(a)** Open a database program and create a database named **MHS.** **(1mark)**

**(b)** Create three tables named **Students**, **Sponsor** and **Fees.** **(3marks)**

**(c)** Using database file created in (a) above use the following field properties. **(6marks)**

**Student Table**

| Field name | Data types and properties |
|---|---|
| School-Code | Default value = 427 |
| AdmNo | Text (Size = 4, Required = Yes ) |
| Student Name | Text (Size = 16) |
| Date of Birth | Date and time (Size = 10) |
| Amount paid | Text (Size = 4, Required = Yes ) |
| SponsorID | LookUp -sponsor table |
| BankID | Text |

**Sponsor_Table**

| Field name | Data types and properties |
|---|---|
| SponsorID | Text (Size = 4, Required = Yes ) |
| Sponsor Name | Text (Size = 16) |

**Amount_Table**

| Field name | Data types and properties |
|---|---|
| BankID | Text |
| BankName | Text (Size = 10) |
| Amount Per Student | Number (Size = 8, Decimal Place = 2) |
| Mode of payment | Text (Size = 12) |

(i) Create the relationship between the tables. **(2marks)**

(ii) Enforce referential integrity between the tables. **(1mark)**

(iii) Create the three forms **StudentForm, SponsorForm** and **AmountForm**. **(3marks)**

(iv) Enter the following data in their respective tables using the respective **forms.** **(8marks)**

**Table 1: Sponsor Table**

| SponsorID | Sponsor Name |
|---|---|
| S1 | Wings |
| S2 | Majani |
| S3 | Elimu |

**Table 2: Student Table**

| Sch-Code | AdmNo | SponsorID | StudName | BankID | DateOfBirth |
|---|---|---|---|---|---|
| 427 | 444 | S1 | Lilian Mwende | 100 | 12/03/2000 |
| 427 | 443 | S3 | Ruth Akinyi | 200 | 23/01/1998 |
| 427 | 445 | S2 | Frida Omondi | 100 | 11/07/2002 |
| 427 | 442 | S1 | Bianca Godana | 300 | 12/05/2005 |
| 427 | 410 | S3 | Christine Awuor | 300 | 28/05/1999 |
| 427 | 413 | S2 | Baraka kalala | 200 | 30/09/1998 |
| 427 | 449 | S1 | Rael Mokaya | 100 | 18/02/2005 |
| 427 | 411 | S3 | Slivia Odanga | 100 | 17/04/2001 |
| 427 | 412 | S2 | Jane Kawaswa | 200 | 19/06/2004 |
| 427 | 415 | S2 | Jack Jake | 100 | 22/03/2003 |

**Table 3: Amount Table**

| BankID | BankName | Amount Per Student | Mode of payment |
|---|---|---|---|
| 100 | COOP | 550,000 | EFT |
| 200 | KCB | 120,000 | M-banking |
| 300 | EQUITY | 420,000 | Cheque |

**(d)** Create a query to display the fields:

**(i)** AdmNo, Sponsor name, age and Students whose first name start with letter **"B"** and whose payment Bank is **"COOP"** Save query as **B-query**. **(5marks)**

**(ii)** StdName, Sponsor name, Mode of payment and Amount per student. Calculate the total amount received. Save query as **AMount-query**. **(5marks)**

**(iii)** Create **Amountreport** from A**mount query** display all the records grouped by mode of payment and find the average per mode of payment **(4 marks)**

**(e)** Create a bar chart to display students and their respective amount received. Save chart as S-**chart.** (**2 marks)**

**(f)**Create **S-report** to display the following. **5marks)**

Report title Sponsorship Report 2022

AdNo, Student Name, Sponsor Name, Bank Name, Bank ID and Amount

**(g)** Print the following: **(4marks)**

**(i)** The Student table

**(ii)** The B- query

**(iii)** The chart

**(iv)** The S-report

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 9

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTION TO CANDIDATES**

- Write your name and index number in the spaces provided above
- *This paper consists of **two** sections **A** and **B**.*
- *Answer **ALL** questions in section **A**.*
- *Answer question 16 and any other THREE questions from section B.*
- *All answers should be written in the spaces provided on the question paper.*

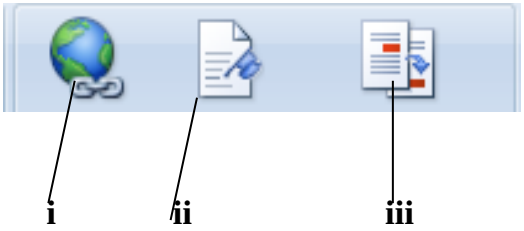
**For Examiners Use Only**

| Section | Questions | Candidates Score |
|---|---|---|
| A | 1-15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | TOTAL SCORE | |

**SECTION A**

*Answer **ALL** questions*

**1.** Name the parts labelled in the diagram below of a page layout properties **[3 marks]**




**2.** Explain briefly how an uninterruptible power supply (UPS) may help to protect a computer system and its data. **[1 mark]**

**3.** How is data verification different from data validation? **[1 mark]**

Give one example of data validation technique **[1 mark]**

Give one example of data verification technique **[1 mark]**

**4.** What kind of program is normally contained in a ROM chip and Explain briefly the main purpose of such a program. **[2 marks]**

**5.** Distinguish between system software and application software. **[2 mark]**

**6.** Give the similarities between optical mark readers and optical character read**ers. [2 marks]**

**7.** In word processing, distinguish between text insertion and overtyping. **[2 marks]**

**8.** Explain, using examples where appropriate, the meaning of these computer terms.

**(i)** interrupt **[2 Marks]**

**(ii)** buffer **[2 Marks]**

**9.** Explain the following spreadsheet concepts:

**(i)** Automatic Recalculation. **[1 mark]**

**(ii)**What if analysis **[1 mark]**

**10.** Explain briefly why the advancement of computer technology has caused environmental hazards. **[2 marks]**

**(i)**What is telecommuting? **[1 mark]**

**(ii)State four** benefits of telecommuting. **[2 marks]**

**(ii)**How is e-commerce different from e-business? [**1 mark]**

**11.** (i)What is a coprocessor? **[1 mark]**

**(ii)**How does parallel processing work? **[1 mark]**

**(iii)**What is pipelining? **[1 mark]**

**12.** (i)What is a driver program? **[1 mark]**

**13.** (ii). Give **one** example of hardware device that may serve more than one purpose (e.g., input and output). **[2 marks]**

**14.** (i)How is a patent different from a trademark? **[2 marks]**

(ii)What is the difference between unauthorized access and unauthorized use? ***[2 marks]***

**15.** (i)What is a workstation? **[½ mark]**

**(ii)**What is a server? **[½ mark]**

## SECTION B

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

**16.** (a) Explain the three control structures in programming **[3 Marks]**

(b)State and describe three types of error can occur in programming **[3 Marks]**

(c)(i) State **two** differences between a compiler and an interpreter **[2 marks]**

(ii)Give **one** advantage of compliers over interpreters **[1 mark]**

(iii)Give **one** advantage of interpreters over compliers **[1 mark]**

(d) Draw the corresponding flowchart for the pseudo code below. **[4 marks]**

Assign 0 to A,
Repeat adding 1 to A,
Until A is greater than or equal to 5,
Print A.

**17.** (a) How is peer-to-peer network different from client/server network, considering how programs, data and information are stored? **[2 marks]**

(b) (i) Give **three** advantages of optical fibers over twisted-pair wires and coaxial cables. **[3 marks]**

(ii) Suggest **two** disadvantages of optical fibers. **[1 mark]**

(c) (i)Compare asynchronous and synchronous transmission. **[1 mark]**

| asynchronous | synchronous |
|---|---|
| | |
| | |

(ii) Give one disadvantage of the c(i) above **[1 mark]**

| asynchronous | synchronous |
|---|---|
| | |

(d) (i)Compare the following Ring ,star and bus network topologies. **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |
| | | |

(ii)Give one **disadvantage** of each **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |

(iii)Draw a diagram t represent the ring ,star and bus topologies **[1 ½ marks]**

| Bus NetWork | Ring NetWork | Star Network |
|---|---|---|
| | | |

(e) (i) Explain the term upload **[½ mark]**

(ii)If a 56K modem is operating at full speed, how long does it take to download a 1-MBfile?

**[2 marks]**

**18. (a**).Describe the role of the systems analyst. **[2 marks]**

**(b).**Describe 2 techniques used by the systems analyst in requirements **specification.[2 marks]**

(b).In the software development process, what happens at the analysis stage? **[1 Mark]**

(c) Describe fully what is meant by the term *top-down design*? **[3 Marks]**

(d) The process of developing such software is an iterative process. What does *iterative* mean?

**[1 Mark]**

(e)(i) What are CASE tools? **[1 Mark]**

(ii)What is the purpose of CASE tools? **[1 Mark]**

(iii) What does *CASE* stand for? **[1 Mark**]

(f) Identify ant two activities within the design stage of the software development process **[3 Marks]**

**19 (a**).Describe four functions of a single user operating system. [**4 Marks]**

(b) Explain the need for an operating system to have a command language interpreter. **[1 Mark]**

(c) Give 4 examples of the many processes which can be initiated by a user and which are then carried out by the operating system. **[4 Marks]**

(d) What happens if a command entered by the user is not recognized by the operating system? **[1 Mark]**

(e)Describe an advantage and a disadvantage to storing the operating system in RAM rather than in ROM? **[2 Marks]**

(g) Describe three features that a **network operating system** must have that a single user operating system does not need. **[3 Marks]**

**20. (a)** Explain two reasons why computers use the binary system? **[2 Marks]**

(b)What is meant by the term *word* in the phrase *16-bit word computer*? **[1 Mark]**

(c) What is the decimal value of the largest integer that can be represented by a byte in a computer which deals only with positive numbers? **[1 Mark]**

(d )What does the acronym ASCII stand for and what is ASCII? **[2 Marks]**

(e) Complete the following table and note that no marks will be awarded for answers with missing or unclear working. **[6 Marks]**

| BIN | DEC | HEX |
|---|---|---|
| | 45 | |
| | | B6 |
| 11001 | | |

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 9

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**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 top right hand corner of each printout*
***b)*** *Write your name and index number on the CD/Removable storage media provided*
***c)*** *Write the name and version of software used for each question attempted in the answer sheet provided*
***d)*** *Answer all questions*
***e)*** *All questions carry equal marks*
***f)*** *Passwords should not be used while saving in the CD/Removable storage medium*
***g)*** *All answers must be saved in the CD/Removable storage medium*
***h)*** *Make printout of the answers on the answer sheet*
***i)*** *Arrange your printout and ties/staple them together*
***j)*** *Hand in all printouts and the CD/Removable storage medium used*
***k)*** *Candidates should answer the questions in English*
***l)*** *ALL Data for currency data type should be formatted to Kenya Shillings*
***m)*** *All the system Date and Time should be set to correct Kenya time and Date settings*

## QUESTION ONE

b) The data below shows a spreadsheet for loan applicants from a youth fund from a certain county.

| MEMBER NO | NAME | DATE OF BIRTH | DATE OF APPLICATION | GENDER | AGE | AMOUNT APPLIED |
|---|---|---|---|---|---|---|
| A001 | ABC | 1/3/1992 | 1/1/2016 | M | | Ksh 200,000.00 |
| B001 | CDE | 2/6/1999 | 3/1/2016 | F | | Ksh 600,000.00 |
| C008 | FGH | 5/6/1992 | 3/1/2016 | M | | Ksh 400,000.00 |
| K001 | JKL | 2/7/1990 | 7/1/2016 | F | | Ksh 700,000.00 |
| S007 | MNO | 2/9/1960 | 7/1/2016 | M | | Ksh 600,000.00 |
| Z006 | KRS | 4/8/1992 | 2/2/2016 | M | | Ksh 500,000.00 |
| A008 | TUV | 4/8/1960 | 3/2/2016 | M | | Ksh 700,000.00 |
| B005 | CED | 2/6/1995 | 5/2/2016 | F | | Ksh 600,000.00 |
| C011 | HGF | 5/6/1990 | 10/2/2016 | M | | Ksh 400,000.00 |
| K012 | LKJ | 2/7/1970 | 6/1/2016 | M | | Ksh 700,000.00 |
| S019 | NOM | 2/9/1991 | 4/6/2016 | M | | Ksh 600,000.00 |

Type the data as shown in the spreadsheet above name the worksheet as Original save the workbook as application. **(14 Marks)**

**(b)** Copy the worksheet named original above to another worksheet in the same workbook and name it as Evaluation.

(i) Fill the column for the (AGE) which is the difference between DATE OF APPLICATION and DATE OF BIRTH in years to the nearest whole number. **(6 Marks)**

(ii) Create a validation in the DATE OF APPLICATION such that it should be after DATE OF BIRTH. **(2 Marks)**

(iii) Format all columns having currency Data type to Kenya shilling. **(2 Marks)**

(iv) Create the columns COMMENT and AMT AWARDED.

The COMMENT is based on the following

- I f the gender is male and the age by the data of applicable is greater than 30 years the COMMENT is INELIGIBLE otherwise ELIGIBLE.
- Amount awarded if a person is eligible if 80% of the amount applied.

(v) Fill in the two columns for the AMOUNT AWARDED and COMMENT using the formula. If an applicant is INELIGIBLE the amount awarded is left blank. **(10 Marks)**

(c) Copy the worksheet named Evaluation above to another worksheet in the same workbook and name it as final.

(i) Filter out data in the final in the final worksheet leaving out those who have been awarded a loan. **(2 Marks)**

(ii) Create a table showing the total amount awarded to all Males and total awarded to Females and total for both male and females. In the sample table below fill in the values using conditional if statement . **(6 Marks)**

| | AMOUNT(Ksh) |
|---|---|
| **MALE** | |
| **FEMALE** | |
| ***Total*** | |

(iii) Draw a pie chart representing the total amount for males awarded and females warded **(2 Marks)**

(d) Print the following: **(4 Marks)**

**(v)** Original worksheet

**(vi)** Evaluate worksheet

**(vii)** Final worksheet

**(viii)** The pie chart

## QUESTION TWO

The table below an extract of a manual data structure system used by a librarian of a particular school

| ADMNO | S_NAME | CLASS | BOOK_NO | TITLE | BORROW TYPE | DATE_BORROWED | DATE_RETURNED |
|---|---|---|---|---|---|---|---|
| 123 | MIKE | 1A | B001 | COMPTER STUDIES BK 1 | SHORT | 2-1-2016 | 12-1-2016 |
| 456 | JOHN | 1B | A002 | COMPREHENSIVE ENG BK 1 | LONG | 1-2-2016 | 17-1-2016 |
| 789 | ADREW | 1C | B003 | KIE MATHEMATICS BK 1 | LONG | 1-3-2016 | 14-3-2016 |
| 987 | JAMES | 2A | D004 | LONGHORN GEOGRAPHY BK2 | SHORT | 1-4-2016 | 8-4-2016 |
| 654 | JACOB | 2B | K005 | KISWAHILI SHAIRI BK2 | SHORT | 1-5-2016 | 9-5-2016 |
| 321 | NANCY | 2C | B006 | MATHEMATICS BK2 | SHORT | 2-3-2016 | 10-3-2016 |
| 879 | MARY | 3A | C005 | HISTORY BK3 | LONG | 2-4-2016 | 17-4-2016 |
| 564 | MERCY | 3B | K009 | FOUNDATION CHEMISTRY BK 1 | LONG | 2-5-2016 | 14-5-2016 |
| 213 | PETER | 3C | H001 | KISWAHILI LUGHA BK 2 | LONG | 1-4-2016 | 18-4-2016 |
| 123 | MIKE | 1A | K005 | KISWAHILI SHAIRI BK2 | SHORT | 1-5-2016 | 19-5-2016 |
| 456 | JOHN | 1B | B006 | MATHEMATICS BK2 | SHORT | 1-4-2016 | 5-4-2016 |
| 789 | ADREW | 1C | C005 | HISTORY BK3 | SHORT | 1-4-2016 | 7-4-2016 |
| 987 | JAMES | 2A | K009 | FOUNDATION CHEMISTRY BK 1 | LONG | 1-5-2016 | 8-5-2016 |
| 654 | JACOB | 2B | H001 | KISWAHILI LUGHA BK 2 | LONG | 1-4-2016 | 22-4-2016 |

The library charges 2 shillings per every book borrowed per day, if the book is not returned in time it attracts a penalty of 5 Shilling per day. The short loan is a maximum of seven days while the long loan is 14 days

**d)** From the table above create a database called library.

**(iv)** Create THREE tables Student(ADMNO as primary key) and Book(BOOK_NO as primary key) and Borrow( Borrow_id as primary key which is auto number). **( 6 Marks)**

**(v)** Create relationship between the three tables **( 2 Marks)**

**(vi)** Fill in the data in the three tables **( 15 Marks)**

**e)** Create a the following queries

**(vi)** Query named chargesqry for all charges for books on short loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,NORMAL_CHARGE,PENALTY_CHARGE,TOTAL_CHARGE)( 10 Marks)

**(vii)** Query named shortchargesqry for all charges for books on short loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,TOTAL_CHARGE) **( 2 Marks)**

**(viii)** Query named longchargesqry for all charges for books on long loan the query should have the following fields(ADMNO,S_NAME,BOOK_NO,TITLE,BORROW TYPE,DATE_BORROWED,DATE_RETURNED,NO_OF_DAYS_BORROWED,TOTAL_CHARGE) **( 2 Marks)**

**(ix)** Create a report showing the total amount which the library has earned between any two dates on short loan save it as shortbetweendatesrpt format the currency data type to Kenya shillings **( 6 Marks)**

**(x)** Create a report showing the total charged to a student for both long and short loan borrowing in one report save it as studentchrgrpt format the currency data type to Kenya shillings **( 4 Marks)**

**f)** Print the following **( 4 Marks)**

**(v)** All tables with data

**(vi)** Both query with data

**(vii)** Shortbetweendatesrpt

**(viii)** studentchrgrpt

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 10

**451/1**

# COMPUTER STUDIES

**PAPER 1**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTION TO CANDIDATES**

**a)** *Write your name and index number in the space provided above.*

**b)** *Sign and write the date of examination in the spaces provided above.*

**c)** *This paper consists of **two** sections **A** and **B**.*

**d)** *Answer **all** the questions in section **A**.*

**e)** *Answer question **16** and any other **three** questions from section **B**.*

**For Examiner's Use Only**

| Section | Question Number | Candidate's Score |
|---|---|---|
| A | 1-15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| Total | | |

# Section A (40 Marks)

***Answer all question in this section in the spaces provided***

**1.** Molly a secretary at Kassu Secondary School carries out her daily duties using computers and suffers wrist strain. State two ways she would reduce wrist strain. **(2 mark)**

**2.** There are two booting processes of the computer. Explain the cold booting process **(2 Marks)**

**3.** The manager of KASSU Co. Ltd. wishes to purchase an output device for the company. State three factors to consider when selecting the output device to purchase. **(2 Marks)**

**4.** State **two** disadvantages of entering data using touch sensitive screens in tablet computers. **(2 marks)**

**5.** Due to the rapid change in technology, the world is slowly moving from the magnetic and optical storage devices to solid state storage devices.

**a.** Define the term "solid state storage device" **(1 Mark)**

**b.** State any two advantages of solid state storage devices **(2 Marks)**

**6.** Differentiate between HDMI and firewire interface cables **(2 Marks)**

**7.** Lamura games teacher at Tatu secondary school wants to invites several schools for Basketball tournament. She was advised to use mail merging technique to create invitation letters for the respective schools identified. State three benefits of this technique. **(3 Marks)**

**8.** In a relational database, it is important to identify and create relationships between the database objects. Mentioning the type of relationship, state circumstances under which each relationship is formed. **(3 Marks)**

**9.** Suggest any four application areas in which you would expect a supermarket retail manager to use the internet. **(4 Marks)**

**10.** State the stages of system development life cycle in which each of the following activities that place. **(3 Marks)**

**(a)** Staff training

**(b)** Error correction

**(c)** Cost effectiveness

**11.** The use of ICT has affected every aspect of human life. State one disadvantage and two advantages of ICT on physical fitness in the society **(3 Marks)**

**12**. The Internet is a massive network of networks that connects millions of computers together globally. Explain two ways through which an individual can access the **internet.** **(2 Marks)**

**13.** State two ways in which ICT can be used to register a citizen for *huduma* number **(2 Marks)**

**14.** Using the twos complement & 8 bit binary notation, perform the calculation $15_{10} - 41_8$ leaving your answer in decimal number. **(6 Marks)**

**15.** Distinguish between a special purpose computer and a dedicated computer. **(2 Marks)**

## SECTION B (60 MARKS)

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

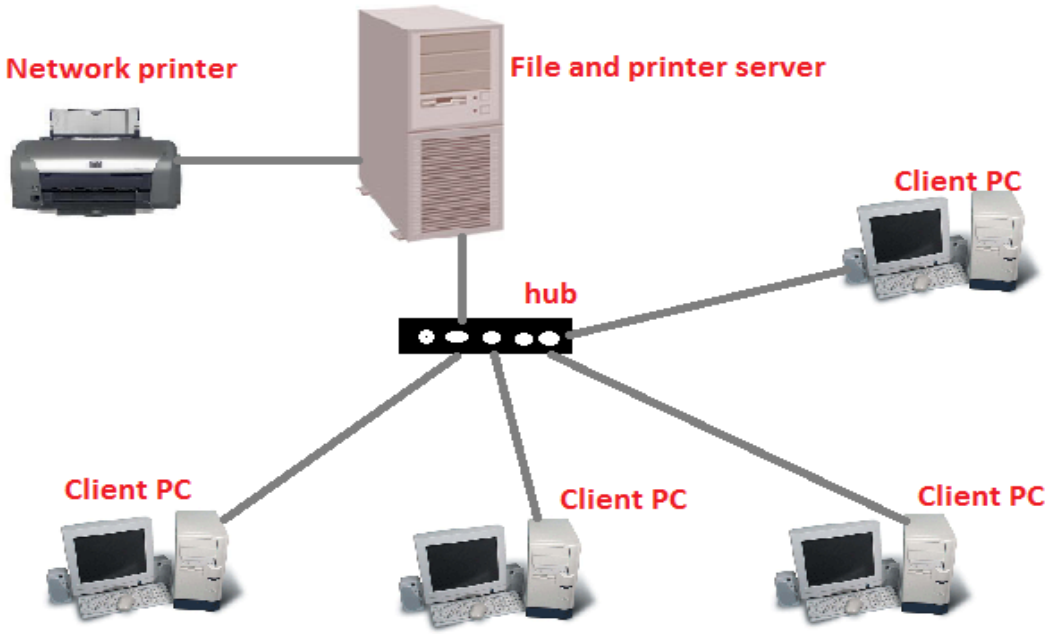
**16.** Below is a pseudocode for a prgoram that is meant to be used for calculating the sum and average of all even numbers between 50 and 100 and display results.

```
1.    set sum = 0
2.    for num = 0 to 100 do
3.    num = num + 1
4.    sum = num + sum
5.    average = sum/count
6.    end
7.    print sum, average
```

**a.** The pseudocode has four logical errors, identify and correct the errors. **(8 Marks)**

**b.** Draw a flowchart for the corrected version of the pseudocode in (a) above. **(7 Marks)**

**17.** Study the diagram below of a school network and use it to answer the questions that follow.



**a.** Identify the network represented in the diagram **(1 Mark)**

**b.** State any two advantages and two disadvantages of the above network **(4 Marks)**

**c.** Distinguish between multiplexing and demultiplexing as used in data transmission**.** **(2 Mrks)**

**d.** State the importance of multiplexing during data transmission **(1 Marks)**

**e.** Distinguish between packet switching and circuit switching of packets during transmission**(2 Mrks)**

**f.** Data is constantly under threat from everyone handling it and the larger society. Identify any two physical threats to data by the employees of the organization to its information system **(2 Marks)**

**g.** Mark, an employee of the institution used his computer to access his boss's computer to get some classified information and gave it to one of the clients at a fee.

**i.** State the type of crime committed by Mark **(1 Mark)**

**ii.** State two possible ways of protecting the data against the crime committed by Mark **(2 Marks)**

**18. (a)** Explain the difference between *freeware and open source softwares*. **(4 marks)**

**(b)** Describe how operating systems handle the following in a computer system.

**i.** Errors **(2 marks)**

**ii**. Interrupt **(2 marks)**

(c).

i. State the meaning of the term fragmentation as used in disk management. (**1 mark)**

ii. State two effects of fragmentation in a computer system. **(2 marks)**

(d). Explain the purpose of the following in a computer. **(2 marks)**

**i.** Cache memory

**ii.** Output buffer

(e). State **two** characteristics of Random Access memory. **(2 marks)**

**19. a**. Data collection is a process of gathering data from all the relevant sources. List the data collection stages. **(4 Marks)**

b. Explain three advantages of time sharing as a data processing mode. **(3 Marks)**

c. Differentiate between a webmaster and a web developer. **(2 Marks)**

d. Differentiate between automatic recalculation and what if analysis as used in spread sheet programs. **(2 Marks)**

**e.** With aid of an example in each case, describe each of the following cell referencing methods.

i) Range reference **(2 Marks)**

ii) Referencing using labels **(2 Marks)**

**20.**

a. There are many systems developed some of which contrast each other. Distinguish between a conceptual and physical system. **(2 Marks)**

b. Every organization requires an information system.

i. Define an information system **(1 Mark)**

ii. Describe any three reasons why it is necessary for an organization to change its existing information system **(3 Marks)**

c. Testing systems after development is a very critical process in systems development. State any four test conditions to be covered for effective testing of the system. **(4 Marks)**

d. With examples for each, Distinguish between a page layout based DTP software and graphical based DTP software **(3 Marks)**

**e**. State two reasons why it is important to implement the use computers in the monitoring and control processes of industrial products **(2 Marks)**

# KCSE 2025 TOP SCHOOLS' PREDICTIONS

## EXPECTED EXAM 10

**451/2**

# COMPUTER STUDIES

**PAPER 2**

**TIME: 2½ HOURS**

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

1. *Type your name and admission number at the top right hand corner of each printout*
2. *Sign and write the date of the examination below the name and index number on each printout*
3. *Write your name and index number on the compact disks*
4. *Write the name and version of the software used for each question attempted in the answer sheet*
5. *Passwords should not be used while saving in the compact disks*
6. *Answer all the questions*
7. *All questions carry equal marks*
8. *All answers must be saved in your compact disks*
9. *Make a printout of the answers on the answer sheets provided*
10. *Hand in all the printouts and the compact disks.*

**1.** **(a)** (i) Create a **folder** and name it as the **last three digits** of your index number.**(1 mark**

(ii)Create the document as it appears and save as **OS_RAW"**. **(17 Marks)**

# TYPES OF OPERATING SYSTEMS

When identifying an operating system, it is important to consider certain aspects of classification in order to group them correctly. Therefore operating systems can be classified according to:

1. *Number of tasks*
2. *Number of users*
3. *User interface*

| CLASSIFICATION ACCORDING TO NUMBER OF TASKS | |
|---|---|
| **SINGLE TASKING OPERATING SYSTEM** | **MULTITASKING OPERATING SYSTEM** |
| llows the computer to perform only one task a a time | allows a single CPU to perform severa operations at the same time. |
| he processing task taking place must firs finish executing before another task i assigned the processor | he processor switches from one task to anothe as directed by the operating system at a ver high rate |

## CLASSIFICATION ACCORDING TO INTERFACE

~~**INTERFACE**~~ refers to the method of interaction between the user and the computer and interface is seen as what lies between the user and the computer that brings them together in an understandable form by the user, hence making the use of the computer possible.

The underlying principle in operating system as design is to make the interface as easy as possible. The consideration of operating systems mainly depends on the interface, that is user friendly (ease of using) it is, therefore the more user friendly the interface is, the more easy to operate the computer.

## COMMAND-LINE BASED OPERATING SYSTEMS

ommand-line user interface operating systems was used by the first operating systems which only provided the user with a black screen to type a command at the prompt. The computer reads the typed command from the command line and executes it. For the command –line operating system to be more user friendly, English like words- descriptive verbs ie print, copy etc and unique abbreviations ie DEL, REN, CHKDSK etc were used as commands.

***Command-line operating systems are not user friendly because;***

- It is difficult to remember all the commands
- It cannot process complex graphics
- It cannot support the emerging hardware and software technologies.

**(a)** Set the page as follows: **(4 marks)**

(i) Paper size: A4

(ii) Measurements: inches.

(iii) Set margins: 1.2" all round

(iv) Font type: Times Roman

**(b)** Spell check the document. **(1 marks)**

**(c)** Save the document above as **OS_FORMAT**, in the folder created and apply the following format. **(1 mark)**

**(d)** (i) Apply hanging Indent the first paragraph starting with "***When identifying an operating system*** ……" By 0.8". **(1 mark)**

(ii) Convert all the text from the paragraph starting with "***The underlying principle ……"*** into three columns of the same width and height and a line between**.** **(2 marks)**

(ii) Change the line spacing for the entire paragraph starting with "Command-line user interface ….." to 1.5. **(1 mark)**

**(e)** Format the "*Star*" as follows: **(2 marks)**

- Height: 0.74"
- width: 0.92"

**(f)** Apply the following format to the document;

(i) Insert water mark with the text "*Operating Systems*" on the document of font size 20 and running diagonally from left to right. Apply red colour. **(4 marks)**

(ii) Insert page numbering at the bottom centre of every page *x of y*. **(1 mark)**

(iii) Insert the text "name and index number " as the header align to the right. **(2 marks)**

(iv) Replace the word **REN** with the word **RENAME** **(1 Mark)**

**(v)** Insert an endnote to explain the meaning of the term CHKDSK in the document. **(2 marks)**

(vi) Create page border made of dotted line. **(2 marks)**

**(g)** Insert a break at the end of the document created such that the new section on a new page. **(1 mark)**

**(h)** (I) Table 1 below shows various operating system market dominance from the year 2017 to 2019 in percentage. Insert a bar chart in the new section to represent the information shown in the following table. **(3 marks)**

| OS Name | Year 2019 | Year 2018 | Year 2017 |
|---|---|---|---|
| Windows | 75.47 | 71.4 | 69.72 |
| MacOS X | 12.33 | 9.67 | 8.13 |
| Linux | 1.67 | 1.51 | 1.42 |
| Chrome OS | 1.11 | 1.01 | 0.91 |
| Others | 9.42 | 8.82 | 8.15 |

**Table 1**

(II) Apply a grey background to the area created in (ii) above. **(1 mark)**
(III) Insert the caption "*Operating System Market Dominance 2017-2019*". **(1 mark)**
(VI) Change the orientation of the page containing the chart to landscape. **(1 mark)**
(VII) Save the document in the folder created and print on both sides of the paper. **(1 mark)**

**2.** The table below shows extract orders made by several school in Kopiyo Carpentry Workshop.

| School Number | Furniture Number | School Name | School Category | Furniture Name | Furniture Material | Carpenter Name | Carpenter Number | Number Ordered |
|---|---|---|---|---|---|---|---|---|
| 104 | 11-01 | Vision | Mixed | Desk | Mahogany | Alpha | CA-1 | 12 |
| 106 | 11-02 | karatasi | Boys | Chair | Elgon teak | Baya | CA-2 | 13 |
| 120 | 12-01 | Dove | Girls | Table | Elgon teak | Maria | CA-3 | 16 |
| 189 | 12-02 | Manar | Mixed | Single bed | Mahogany | Alpha | CA-1 | 12 |
| 199 | 13-01 | Pepeo | Boys | Office desk | Cedar | Baya | CA-2 | 13 |
| 200 | 11-01 | Rehema | Girls | Desk | Mahogany | Maria | CA-3 | 16 |
| 210 | 11-02 | Kasuku | Mixed | Chair | Metallic | Alpha | CA-1 | 12 |
| 222 | 12-01 | Kapema | Mixed | Table | Cedar | Baya | CA-2 | 13 |
| 234 | 13-01 | Ravel | Boys | Office desk | Mahogany | Maria | CA-3 | 16 |
| 244 | 13-02 | Eagle | Girls | Double bed | Metallic | Maria | CA-3 | 16 |
| 256 | 11-02 | Goose | Boys | Chair | Metallic | Tom | CA-4 | 20 |
| 270 | 13-02 | Hornbill | Girls | Double bed | Metallic | Tom | CA-4 | 22 |

## Table 2

(iii) Using a database application package, create a database file named **Kopiyo Carpentry.**
(1 mark)
(iv) Create three tables, one to store school details, furniture details and carpenter's details. Name the tables as **School_Details** and **Furniture_ Details** and **Carpenters _ Details**.
(3 marks)
(v) Assign an appropriate primary key to each table. **(2 marks)**
(vi) Create a relationship between the three tables. **(2 marks)**
(v) Enforce referential integrity **(1 mark)**

(b) (i) Create data entry form for each table. **(2 marks)**
(ii) Use the forms to enter the respective the data in table 1 above. **(15 marks)**
(c) Modify the furniture table so as to capture the purchase price of each item as shown below.
**(3 marks)**

| Furniture Number | Purchase Price |
|---|---|
| 11-01 | 3800 |
| 11-02 | 2000 |
| 12-01 | 2600 |
| 12-02 | 4800 |
| 13-01 | 4000 |
| 13-02 | 4600 |

**Table 3**

(d) (i) Create a query named **B_Query** to display furniture number, school name, school category, furniture material, carpenter and number ordered. **(3 marks)**
(ii) Create a query named **Order_Query** to display school names, furniture name, material, purchase price and number of ordered items. Show records whose school name start with letter "**K**" and ordered chairs. **(5 marks)**
(e)Create a report named **S_Report** to display furniture number, school name, furniture name, purchase price, number of items ordered and total income collected. **(10 marks)**

- The records in the report should be grouped by furniture material.
- Show the number of items per group.
- Landscape orientation
- Title the report "Kopiyo Carpentry Worshop Services".

(f) Print the following: **(3 marks**
(i) Tables: School_Details and Furniture_ Details
(iii) Queries : B_Query and Order_Query
(iv) Report: S_Report

# 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*

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