KCSE COMPUTER STUDIES 2022 LATEST PREDICTION EXAMS

KCSE PREDICTION 1 2022

PAPER 1

SECTION A (40 MARKS)

ANSWER ALL THE QUESTIONS IN THE SPACES PROVIDED

1. State three ways in which mobile phones have affected money transactions in Kenya 3marks)
2. State three circumstances that necessitate the development of a new information system 3 marks)
3. Kidato system has offices in Murang'a and Nairobi connected into a network. The management is convinced that someone is illegally gaining access to the data in their computers. State three ways the company can overcome this problem. (3marks)
4. State three reasons why your school may opt to create its own software as compared to buying ready-made programs (3marks)
5. Waurika bora bank is using a system that generates receipts that are printed in triplicates using carbon papers.
   a) Name one type of a printer suitable for this task. (l mark)
   b) Give a reason for your answer (l mark)
6. A mobile phone is regarded as a computer. Give two reasons why. (2marks)
7. Wanafunzi Cooperative has recently introduced magnetic ink character recognition for processing customer cheques. Give any two benefits they are likely to gain from its use. (2 marks)
8. State what will happen when the following combination of keys are pressed in MS Word(2 marks)
   a. CTRL+ P
   b. CTRL + N
9. Define the following terms (2marks)
   i) Multiplexing
   ii) Baseband signal
10. Explain the difference between digital signal and analog signal in data communication (2marks)
11. Define the following terms as used in disk management

i) Partitioning (1mark)

ii) Defragmentation (1mark)

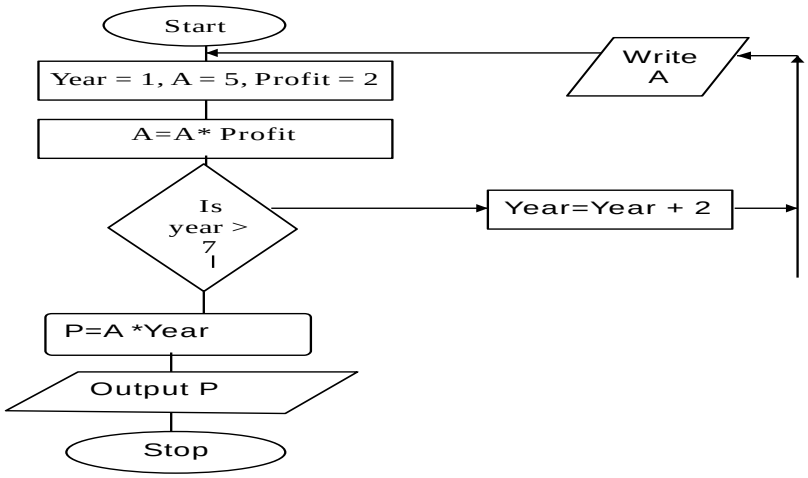
iii) State one reason for defragmenting a disk (1mark)

12. (i) Differentiate between real time processing and batch processing (2 marks)
    (ii) List an example where each of the data processing mode above can be used. (1mark)
    iii) Convert the following binary number, 11001011.001 into decimal form (2 marks)
13. Outline three roles of an internet service provider (ISP) (3 marks)
14. Give three ways in which robots can be used in the army during war (3 marks)
15. The formula = F24 + N$18 was typed in cell J25 and was copied to cell L21 of a spreadsheet. Write the formula in the destination cell (2 marks)

SECTION B:(60 MARKS)

ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS IN THIS SECTION.

16. Study the flowchart below and answer the questions that follow.



(a) List the various outputs from the flow chart above. Show your working. (6 marks)

(b) List three programs that can be used by Web Developers. (3 marks)

(c) Explain three change over strategies used in system development (6 marks)

17. (a) Define the following terms as used in charts. (2 marks)

(i) Legend

(ii) Data range

(iii) (b) The table below shows how a kiosk owner uses a spread sheet to keep records in a shop.

	A	B	C	D	E	F
1	ITEM NAME	NUMBER OF ITEMS	UNIT COST	TOTAL BUYING PRICE	TOTAL SELLING PRICE	PROFIT
2	Blue band	150	120			3600
3	Toss	135	50			1350
4	Cow boy	120	120			2880
5	Panga soap	118	50			1180

i) Write a function to calculate the total buying price. (1 mark)

ii) Write a formula to calculate the Profit. (1 mark)

iii) The total buying prices of all items was increased by 12% and the value 12% is placed in cell B6. Using cell addresses with absolute referencing, write a formula to calculate the Total Selling Price in cell E2. (2 marks)

iv) State the output of the expression =SUM IF (F2:F5,"<1 500")would return (1 mark)

c) Define the term operating system (1mark)

b) Describe any four functions of the operating system (4marks)

(c). State three ways how one can manage his/her disks using windows. (3 marks)

18. (i) State three major types of Networks. (3 marks)

(ii) List two disadvantages of fiber optic cables (2 marks)

(iii) State 3 types of hubs (3marks)

(iv) Define the following terms in reference to the internet:- (3 marks)

(a) Protocol

(b) Website

(c) Spam mail

(v) Other than Google list two examples of search engines (2 marks)

(vi) Explain two communication services offered through the internet. (2 marks)

19 (a) Explain the meaning of the following terms as applied in word processor (2 marks)

(i) Text wrap

(ii) Word wrap

(b) Distinguish between (2 marks)

i. First line and hanging indentation

ii. Auto complete and auto correct features.

(c) Define the following terms as used in data representation (2 marks)

(i) Amplitude

(ii) Frequency

(iii) Nibble

(iv) Byte

(d) Perform the following $11111.1111_2 + 100001.1010_2 - 1111.00111_2$ (3 marks)

(e) Using two's complement subtract 73 from 115 and convert the answer to decimal notation (6mks)

20. (a) Identify one duty of the following ICT specialists

(i)Software engineer (1 mark)

(ii) System analyst (1 mark)

(b) List two types of opportunities available in the field of computer hardware (1mark)

(c) List two ways how the use ICT may affect the society (2 marks)

(d) Daniel has noticed the following problems in his computer;

(i) It is taking a longer time to start up.

(ii) It is often hanging

(iii) Applications are taking long to load.

State three possible causes of these problems and how they can be solved. (3 marks)

. (e) Describe the following terms: (2 marks)

(i) Software suite

(ii) Shareware

(f) Below are two table structures of files in a database:

TABLE 1

Field	Data type
Employee number	Text
Employee Name	Auto number
D.O.B	Date/time
Address	Text

TABLE 2

Field	Data type
Employee number	Number
Data employed	Date/time
Department	Text
Salary	Currency

(i) Which of the two tables is likely to be the parent table? (1 mark)

(ii) It is advisable to enforce referential integrity when creating a relationship. What is referential integrity?

(iii) The field "employee Number" in Table 2 is likely to be the primary key. What will make the relationship between the tables fail to work? (1 mark)

(iv) In databases, the field properties specify finer details related to the fields and the entries expected. State four field properties. (2 marks)

PAPER 2

QUESTION 1 – DATABASE

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:

1. Carpenter Table	
Carpenter_ID	Carpenter Name
CAP_001	JAMES ALUSA
CAP_002	JOHN KANYO
CAP_003	ALEX MUYA
CAP_004	ISAAC WESA
CAP_005	MAURICE NDEYO

2. Customer Table	
CUST_01	MARY KHASANDI
CUST_02	DIANA KHAYANGA
CUST_03	ALEX NYUMBILA
CUST_04	MARTHA KHAOYA
CUST_05	SARAH WAFULA
CUST_06	JOHNSON LUVAHA

3. 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 named; **CARPENTERINFORMATION**. (1mk)

ii) Create three tables named **CarpenterTable, CustomerTable and Ordertable** that will be used to store the above data. (10mks)

iii) Set the primary key for the above tables. (2mks)

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

b) Create a data entry form for the table. (3mks)

c) Enter the data in **CarpenterTable, CustomerTable and Ordertable** respectively. (11mks)

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

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

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

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

g) Print the three tables and the report. (4mks)

Question 2 -Spreadsheet

Use a spreadsheet to manipulate data in the table below.

AdmNo	Name	Stream	Comp	Art	Bus	Eng	Math	Mean	Rank
C001	Barasa	H	56	45	36	56	26		

C002	Wangila	K	58	57	90	54	23		
C003	Wafula	H	48	56	54	45	25		
C004	Wanjala	K	78	95	78	46	24		
C005	Kerubo	H	49	86	68	35	52		
C006	Akinyi	K	56	45	25	63	54		
C007	Odhiambo	H	75	78	45	65	56		
C008	Okunyuku	K	89	69	65	53	51		
C009	Nekesa	H	69	58	45	54	52		
C010	Simiyu	H	85	46	78	52	53		
	Total								
	Total	FOR H							
	Total	FOR K							

a) Enter the data in all bordered worksheet and auto fit all columns. Save the workbook as **Mark1**. (15mks)
b) Find the total marks for each subject. (3mks)
c) Find total for each subject per stream using a function. (5mks)
d) Find the mean mark for each student using a function. (5mks)
e) Rank students 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. Name the sheet as chart1. (7mks)
g) Copy Mark1 in a new sheet, use subtotals to find the average mark for each subject per stream. Rename the worksheet as Mark2. (7mks)
h) Print mark1, mark2 and the chart. (3mks)

KCSE PREDICTION 2 2022

PAPER 1

SECTION A (40 Marks)

Answer all questions in this section

1. Today, many companies are re-engineering their products to implement the USB connection to the computer. State any two reasons for the drift. (2 Marks)
2. Bochongo high school managed to construct a computer laboratory but did not have funds for equipping it with computers. A British company offered to donate some computers to the school
   a. After an assessment, it was identified that the supplied computers were the third generation of computers, state any two characteristics of third-generation computers. (1 Mark)
3. (a)It was noted that after every lesson, the students complained of itchy eyes and mild headache. State any two reasons for this problem. (2 Marks)
   (b) State any one solution of the problem mentioned in (2b) above. (1 Mark)
4. State any two methods of input available for the operation of a smartphone. (2 Marks)
5. Define the term relationship as used in database management systems. (1 Mark)
6. State any two importance of referential integrity with reference to database tables. (2 Marks)
7. State the function of an append query. (1 Mark)
8. Computers are known to create employment for many people in different computing fields. List any two duties of the IT professionals listed below. (4 Marks)
   a. System analyst.
   b. Network engineer.
9. Interfaces enable computer users to interact with the operating system.
   a. State four advantages for using a graphical user interface in loading programs and files. (4 Marks)
   b. A vehicle assembly company has introduced robots to replace the human workforce. State two effects this would have on the work force. (2 Marks)
10. A system analyst is employing a programmer to write a software for a new computer-based system. State the benefits of this method of obtaining appropriate software. (3 Marks)
11. Give any two advantages of OLED monitors over the LED monitors. (2 Marks)
12. Distinguish between margins and borders as used in word processing. (2 Marks)

13. In recent times, computer scientists and engineers have managed to come up with smarter computers, which can almost simulate human thinking and learning often referred to as artificial intelligence (AI), instead of relying on conventional program instructions. List any **two** application areas of artificial intelligence. (2 Marks)
14. DTP is known to be sophisticated software well suited for desktop publishing.
    (a) Explain the following terms as used in desktop publishing. (2 Marks)
    - Pasteboard
    - Text overflow

    (b) The figure below shows a formatting tool used in DTP. Identify its name. (1 Mark)



15. Spreadsheet is the dream software for accountants due to their ability to handle numeric oriented data
    (a) Identify the type of cell referencing used in the expressions below: (2 Marks)
    =RANK($C$3:$A$10, 0)
    =SUM(A$3:A12)
    (b) State the importance of forms in a spreadsheet during data entry. (1 Mark)
    (c) Differentiate between sorting and filtering as used in worksheet data management. (2 Marks)

SECTION B (60 Marks)

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

16. When writing a computer program using a high-level programming language, it needs to be translated into object code for it to be understood and executed by the computer.
    a. State any two advantages of an interpreter. (2 Marks)
    b. State any three characteristics of the third-generation programming languages. (3 Marks)
    The psedocode below was written by a learner. Use it to answer the questions that follows

```
Start
Sum=0
For count=0 - 4 do
Print "enter a number (N)"
Input N
If P>10 then
Number out of range
Else
Sum=sum + N
Print sum
End if
End for
Stop
```

    c. Identify the errors in the above pseudocode and re-write it correctly. (3 Marks)
    d. State the function of the above pseudocode (1 Mark)
    e. Draw a flow chart for the corrected pseudocode (6 Marks)
17. a) State one application of computing where real-time processing is more appropriate than batch processing and give a reason why (2 Marks)
    (b) i) State three reasons why hospitals have changed from a manual system to a computer-based system for storing patient records (3 Marks)
    ii) State any three data access methods that can be used to retrieve a patients record in a computerized system. (3 Marks)
    iii) Other than storing patient records, state any other three ways the computers can be used in a hospital. (3 Marks)
    c) Data protection rules give legal rights to individuals and state that personal data stored on computer systems must be kept secure.
    i) Give one legal right for personal data. (1 Mark)
    ii) Give three software methods of protecting data. (3 Marks)

18. Information systems are known to be the driving force for any organization. The success of an organization depends on the design and implementation of its information system.
    a. Define any four components of an information system. (4 Marks)
    b. State the stage in systems development when the activities listed below are performed. (2 Marks)
        i. The system analyst presents a report recommending for a change in the system.
        ii. The system analyst creates a logical design of the system.
        iii. The project stakeholders invite users to have a feel of the system before implementation.
        iv. The system analyst monitors and evaluates the system performance.
    c. Distinguish between the direct and phased changeover strategies. (2 Marks)
    d. Describe the system characteristics listed below. (4 Marks)
        i. Systems have a life cycle.
        ii. The interdependency between subsystems.
    e. State any three reasons that may lead to information system change in an organization. (3 Marks)

19. After data is processed, it is important to keep it somewhere either permanently or semi -permanently for future use.
    a. Briefly describe how data is stored/ represented on a solid-state storage device. (2 Marks)
    b. State any two advantages of solid-state storage devices. (2 marks)
    c. Distinguish between BCD and EBCDIC coding schemes. (2 Marks)
    d. Using 8 bits and twos complement subtract 43_{10} from 30_{10}, giving your answer in decimal notation (5 Marks)
    e. Convert 11011011111.1111_2 to its equivalent Hexadecimal number (1 Mark)
    f. Determine the value of x in the equation; $1001101_2 - X_{10} = 11010_2$ (3 Marks)

20. Networking is said to be important in facilitation of data transfer.

(a) Dr. Jabari, a networking expert trained his students on various data communication aspects. After a lesson, he asked them to state and explain **three** modes of data transmission. As a student, what answers would you provide? (3 Marks)

(b) Differentiate between LAN and WAN as used in computer networks. (2 Marks)

(c) State **two** advantages of fiber-optic transmission media. (2 Marks)

(d) In a computer network, a server computer must be installed with a network operating system in order to operationalize a number of network functions. State **three** functions performed by a network operating system (NOS). (3 Marks)

(e) (i) Define the following terms as used in the internet.
- Browser (1 Mark)
- Spam (1 Mark)

(ii) Many organizations own and manage websites for various uses. One use of website by a business is conducting their business activities through e-commerce. Mention **three** advantages of e-commerce. (3 Marks

PAPER 2
(PRACTICAL)

1. GOLDEN School intends to carry out mathematics contest in their school for the year 2021. The following is a standard letter inviting other schools to the event.

(a) (i) Create a folder; name it as your name and admission number. (2 marks)

(ii) Using word processor, create the document as it appears. Give the filename **CONTEST** in the folder created (a)(i) above. (19 marks)



THE PRINCIPAL **September 4TH 2021**

……

Dear Sir/Madam,

RE: GOLDEN SCHOOL ANNUAL NATIONAL MATHEMATICS CONTEST

We have the pleasure to invite your school for the National Mathematics Contest sponsored by the Worldwide Tech Ltd and Brooklyn University to be held at GOLDEN School on **Saturday 2nd October 2021 starting at 8.00am.**

The objective of the contest is to demystify the perception and fear that students have towards mathematics as being difficult in order to improve the performance of the subject in the country. All participating students will receive Certificates of Participation and those who excel will receive trophies and certificates of merit. Top students i.e. position 1 & 2 per form and in each category (Junior and Senior); boys, girls and mixed, will receive trophies. **Brooklyn University shall award a one-year full scholarship fees** to the **Best Form Three Boy** and **Best Form Three Girl**.

The mathematics department that produces the top boy and girl at the grand finale will win a cash prize of **Ksh 150,000 for the department.**

Please confirm your participation by calling the school through **Mr. Chepkwony on 0724351706** before 27th feb 2022 to facilitate for logistical prparataions.

Yours faithfully

MR. TOMASO K. NOAH **MRS. KATE WINSLEY**

PRINCIPAL **HOD MATHEMATICS**

(b) Set the page settings as follows: (4 marks)

- Paper Size: A4
- Top margins: 0.4" (1.016) cm
- Bottom margins: 0.4" (1.016) cm
- Gutter: 0.22" (0.548) cm

(c) Format the subject heading which starts with **"RE: KASSU SCHOOL…."** as follows: (3 marks)

- Alignment: Centre
- Font size: 18
- Font type: Britannic Bold

(d) Insert header "Your name and admission number" and include a line object under. (1 mark)

(e) Apply the following to the paragraph starting with *"The objective of the contest ....."*

- Hanging indent By 0.6" (1 mark)
- Line spacing to 1.3 (1 mark)

(f) Format the text containing "**Value Proposition**" as follows: (2 marks)

- White font color
- Dark red background

(g) Create a copy of the document save As **CONTEST_2** and proofread your work. (2 marks)

(h) Insert page numbering at the bottom right of each page. (1 mark)

(i) Group all objects in the school logo. (1mark)

(j) Apply the following character spacing formats to the second paragraph. (2 marks)

- Condensed by 0.9pts
- Kerning for fonts at 8 points & above.

(k) Convert all the last paragraphs into three columns of the same width and height. A line between should separate the columns. (3 marks)

(l) (i) Convert the names and designations at the bottom of the letter to one column and five rows.(3 marks)

(ii)Merge the empty rows inside the table to one cell. (1 marks)

(iii) Put a strikethrough to the names of the designations. (1 mark)

(m) Insert a watermark with any picture from your computer gallery to authenticate your document. (1 mark)

(n) Print the two documents. (2 marks)

2. XYZ is a training college that offers three courses to students. A student sits for three types of examinations every semester. Each examination is marked out of 100%. The following table shows sample data collected from the database:

RECORD NO.	STUDENT ID	STUDENT NAME	EXAM CODE	GENDER	COURSE CODE	DATE ENROLLED	COURSE DESCRIPTION	TUITION FEE	SEMESTER	SCORE
1.	ENG-001	MIKE	01	M	D-ENG	01/11/2017	Diploma in Engineering	Sh. 25,000	2	75
2.	CSC-002	KIOKO	02	F	D-CSC	02/11/2017	Diploma in Computer Science	Sh. 35,000	2	80
3.	NUR-003	ABIUD	03	M	D-NUR	03/11/2017	Diploma in Nursing	Sh. 15,000	2	65
4.	ENG-004	JANE	02	F	D-ENG	01/11/2017	Diploma in Engineering	Sh. 25,000	2	60
5.	CSC-002	KIOKO	03	F	D-CSC	02/11/2017	Diploma in Computer Science	Sh. 35,000	2	78
6.	NUR-003	ABIUD	01	M	D-NUR	03/11/2017	Diploma in Nursing	Sh. 15,000	2	72

a). Using a database management application split the information in the above table into three tables namely; (15 marks)

i. Student enrolment
ii. Exam performance
iii. Courses offered

b). Create a relationship between the three tables (3 marks)

c). Create appropriate forms to be used for entering the records (6 marks)

d) Create a query to:

i. Show all students whose score is greater than 70% save it as ***HighScore*** (3 marks)
ii. Show students whose name end with the letter 'E' save it as ***Engineers*** (3 marks)
iii. Show all students taking Diploma in Computer Science save it as ***Comps*** (3 marks)

e). Create a report called ***Tuition Summary*** displaying the following details: (7 marks)

- Student ID
- Student Name
- Course Description
- Tuition fees
- Total fees collected

f). Using a report called ***ANALYSIS***, create a column chart showing students performance in the exam.(5 marks)

g). Print the tables student enrolment, exam performance, courses offered, the Tuition summary and Analysis reports. (5 marks)

KCSE PREDICTION 3 2022
PAPER 1

1. Name two factors that determine the quality of a scanner (1 mark)
2. Differentiate between freeware and shareware (2 marks)
3. Name and explain three types of system maintenance (3 marks)
4. Describe briefly the functions of a modem for transmitting data between two computers through a standard telephone line (2 marks)
5. Define the term Biometrics and explain how it could be used to enforce security in computer systems (2 marks)
6. Describe any three integrity constraints in a database (3 marks)
7. Explain the following basic operations of the machine cycle in the control unit (3 marks)
   i. Fetching
   ii. Decoding
   iii. Execution
8. Write the following acronyms if full (2 marks)
   I. HDMI……
   II. SATA……
   III. PnP……
   IV. WORM……
9. Ministry of Lands prefers to use hard copy output over soft copy when handling documents for land matters. Give two reasons for this preference (2 marks)
10. Joan needs to send 15 photos to her friend Jean. She chooses to send all the photos together as a single email attachment. Each photo is 1.5 MB in size ,but the maximum possible attachment size is 20 MB.
    a) State how Joan can solve this problem (2 marks)
    b) Differentiate between a word wrap and a text wrap (2 marks)
11. a) Define the term ergonomics (2 marks)
    b) State and explain three examples of ergonomics (3 marks)
12. Name and explain three functions of operating system (3 marks)
    b) Explain the term Pen Computing (2 marks)
13. As regards to communication within a computer network, what do you understand by the following terms: (2 marks)
    a) Ethernet topology
    b) Token ring topology
14. Explain the following terms as used in Desktop Publishing (2 marks)
    i) Cropping
    ii) Master page
15. Change case is where a user applies so that the text can have some contrast in size .Write the word(2 marks)
    Corona VIRUS
    i) Title case……
    Toggle case

SECTION B (60 MARKS)

Answer question 16 and any other three questions from this section

16. a) state two qualities of a pseudo code (1 mark)
b) Explain two methods of testing the program for errors (2 marks)

The Figure below shows a flowchart. Use it to answer the questions that follow.

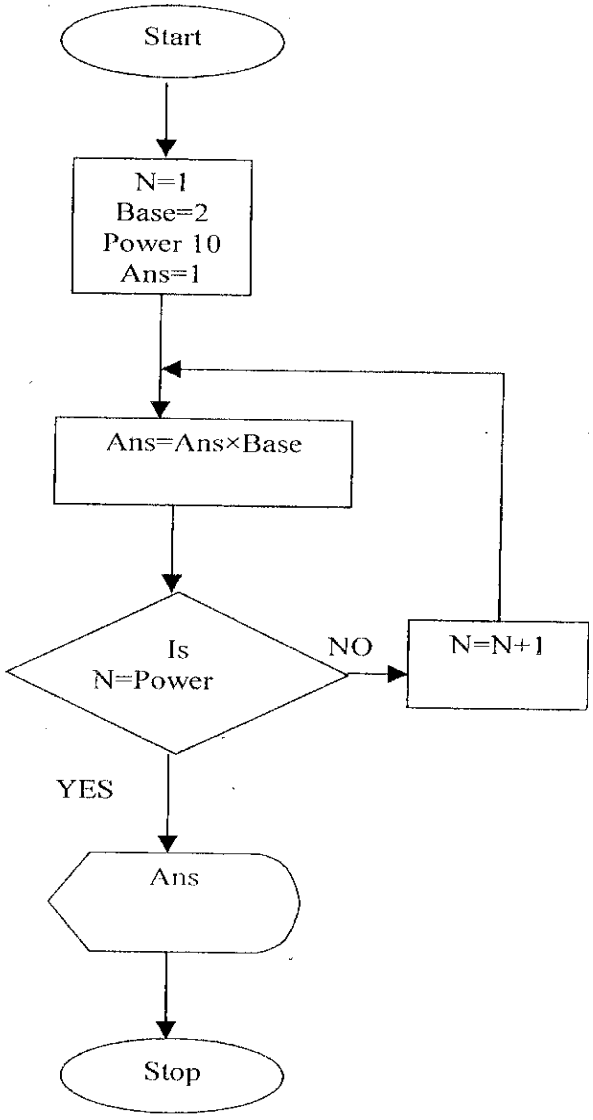


Figure 1

a) Interpret the flowchart (7marks)

b) Write a pseudo code for the flowchart (5 marks)

17. Seal Honey sells computer accessories and needs to order supplies. A spreadsheet program is used to calculate the orders as shown below.

	A	B	C	D
1	ITEM	Price per unit	Number ordered	Cost(Ksh)
2	Flash Disk	1200	50	
3	Memory card	1000	15	
4	Modem	3000	20	
5			TOTAL	

a) Using absolute cell reference, write an expression to calculate the total cost in cell D3 (1 mark)

b) Write down the data type that is stored in cell (2 marks)
   i) C4
   ii) D3

c) Write a function to display the number of cells in which the price per unit is greater than 2,000 (1 mark)

d) State three ways by which threats to data integrity can be minimized (3 marks)

ii) Differentiate between logical file and physical file (2 marks)

e) Explain the following concepts as used in telecommunication systems. (3 Marks)

(i) Attenuation
(ii) Bandwidth
(iii) Repeater

f.Explain any three functions of UPS (3 marks)

18. a)With the aid of a diagram, describe the Hierarchical Database Model. (4 marks)

(b) List **three** factors that should he considered when developing a database application and
give reasons why each should be considered. (6 marks)

(c) (i) Name **three** types of validation checks during data entry in data processing.(3 marks

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

19a) Explain any two coding schemes used in data representation (2 marks)

B i) Using 8 bit representation, give the ones complement of -35_{10} (3 marks)

ii) What is the seven –bit of twos complement of 0110_2 (2 marks)

c)Perform the following calculation (3 marks)

$110001_2+100111_2-01111_2$

d)(i) Convert the binary number 110.101_2 to decimal (2 marks)

ii) Convert 9.625_{10} to binary (3 marks)

20(a) Despite the introduction of the ATM cards, human resource is still necessary in banks. Give two reasons why human beings are still needed. (2mks)

(b) State three advantages of the using the ATM card. (3mks)

(c) What is virtual reality? (2mks)

(d) List three areas where virtual reality is used. (3mks)

(e) What is GPS in air traffic control? (2mks)

(f) Outline three ways computers can be used to enhance marketing.(3mks

PAPER 2

1. (a) Create a folder and name it using the last three digits of your index number. Type the document below exactly as it appears using a word processing package and save it as MOCKING_BIRD in the folder created. (8mks)

TO KILL A MOCKINGBIRD

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

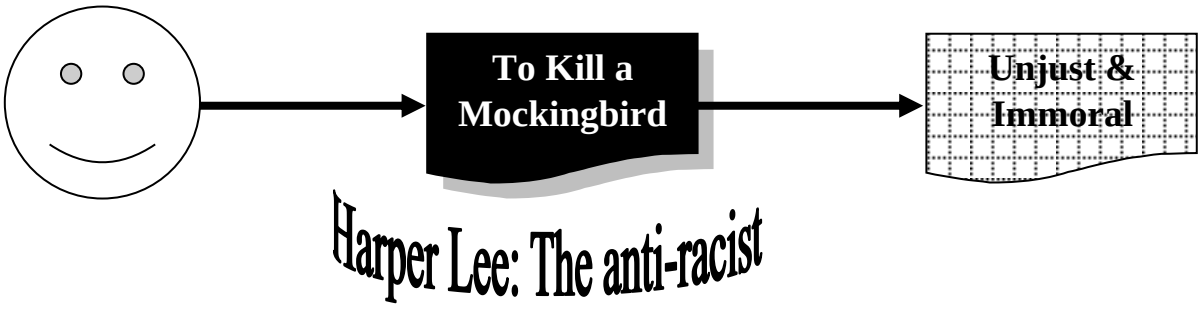
Told through the eyes of Scout Finch, you learn about her father Atticus Finch, an attorney who hopelessly strives to prove the innocence of a black man unjustly accused of rape; and about Boo Radley, a mysterious neighbor who saves Scout and her brother Jem from being killed.

The Three Most Important Aspects Of To Kill A Mockingbird:

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- **Style**: Double line

- **Border color**: Blue
- **Border width**: 2¼pt

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

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

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

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

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

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

2. The tables below, **STUDENT, SUPERVISOR** and **SUPERVISIONS** are extracts of records kept in a certain university for project supervisions.

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

Table 1 STUDENTS TABLE

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

Table 2 SUPERVISOR S' TABLE

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

Table 3 SUPERVISIONS TABLE

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

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

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

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

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

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

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

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

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

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

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

l) Print the following:

- **Tables**: STUDENT, SUPERVISOR and SUPERVISIONS(2mks)
- **Queries**: BALANCE and BALANCE2 (2mks)
- **REPORT**: SUPERVISIONS (1mk)

KCSE PREDICTION 4 2022

PAPER 1

SECTION A: (40 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION

1. (a) State any **two** types of data processing methods (1 mark)

(b) 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. (1 mark)

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

2. Bunamfan 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 (2 marks)

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

iii. State the type of processing carried out (1 mark)

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

a. High humidity in the computer laboratory (1mark)

b. Purchasing software before assessing requirements (1mark)

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

d. Entering the computer lab with food (1 mark)

4. (a) Mention at **least two** trends in the technological revolution of computers. (1 mark)

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

5. (a) 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. (2 marks)

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. (2 marks)
(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)

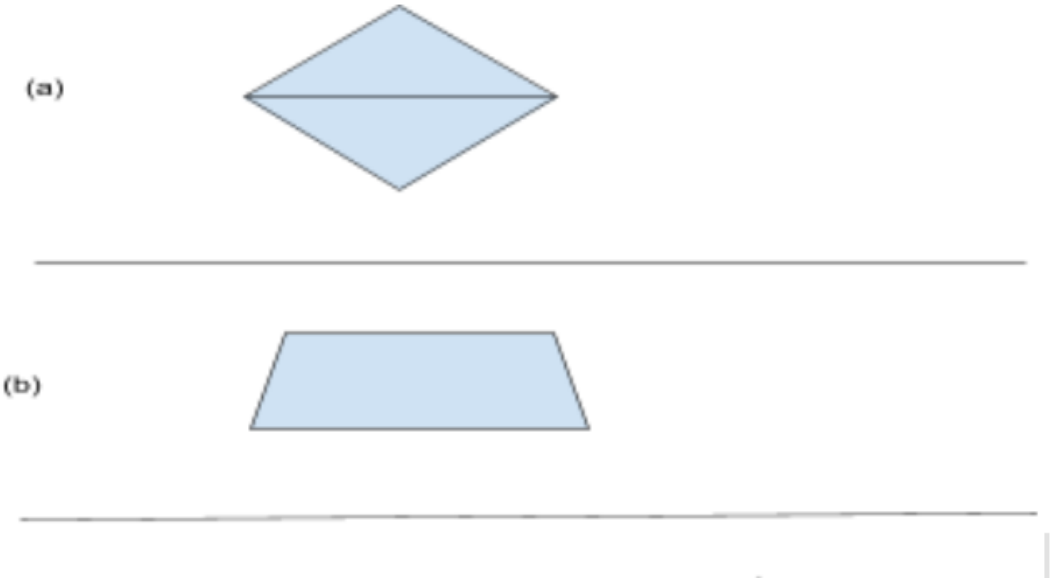
10. In a desktop publishing document, an image embedded can be transformed in various ways. Name any **three** ways one can use to make the image fit in a designated area.(3 marks)

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)



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

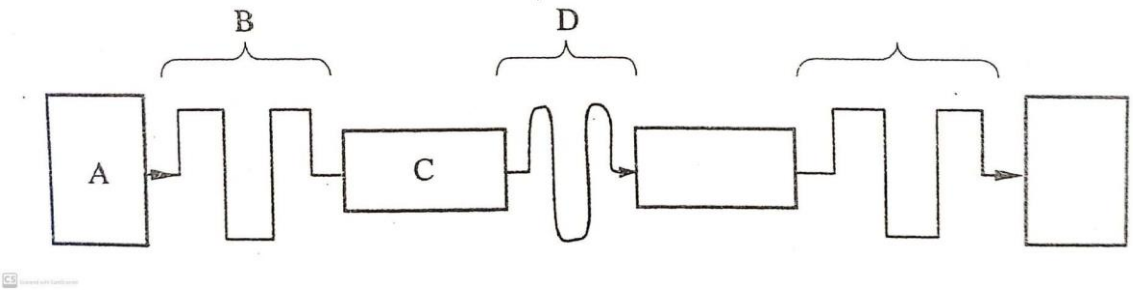
should terminate if the value of 999 is entered for age and output the number of times the statements within the loop were executed. (10 marks)

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. (2marks)

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

(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. (2marks)

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

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

c) Using **<u>two</u>** compliments perform the following arithmetic leaving your answer in binary form. (4 marks

$13_{10} - 15_{10}$

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

PAPER 2

QUESTION 1

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

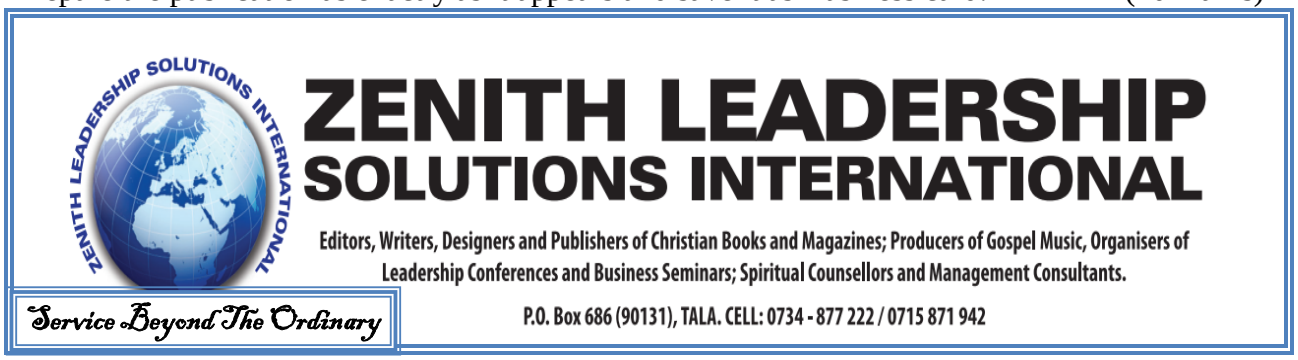
Paper size A4 portrait. (2 marks)

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

Divide the page into TWO columns (2 marks)

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)

Align all the text as shown. (2 marks)

Group the publication as one. (2 marks)

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 PREDICTION 5 2022

PAPER 1

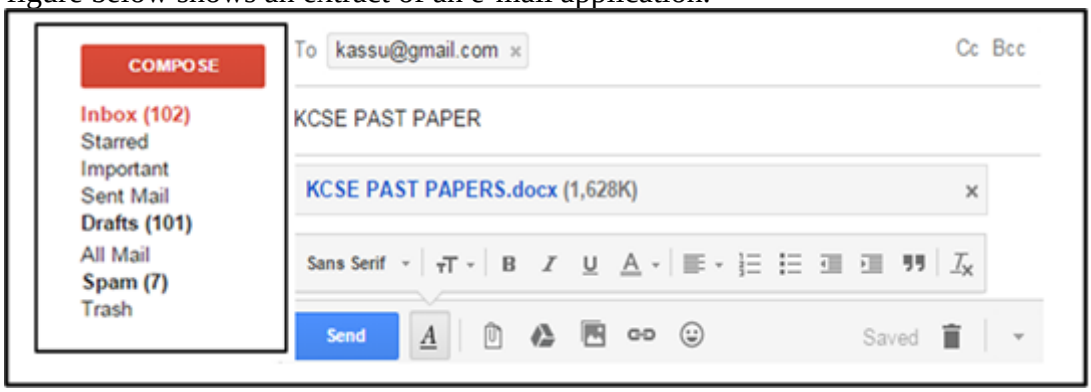
SECTION A (40 Marks)

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

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

requirements that is required for them to be able to access internet. (2 Marks)

9. The figure below shows an extract of an e-mail application.



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

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

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

    b. State two ways in which the problem can be solved (2 Marks)

SECTION B (60 Marks)

Answer question 16 and any other three questions

16. a. State two advantages and two disadvantages of high level programming language (2 Marks)

b. State three situations when REPEAT .. UNTIL structure can be used in writing a program (3 Marks)

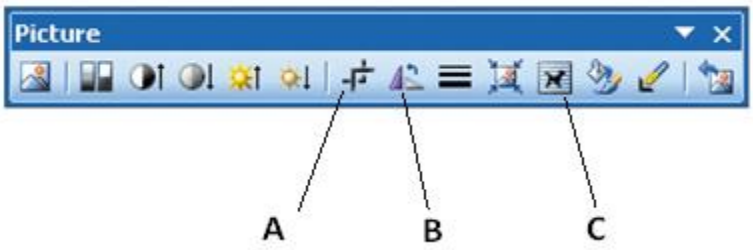
c. The roots of the equation $\mathbf{ax^2 + bx + c = 0}$ are given by the formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

i. Write a pseudocode for the above program (5 Marks)

ii. Draw a flow chart for the above pseudocode (5 Marks)

17. (a) (i) The figure below shows a picture tool bar



Name and state the functions of the features marked A, B and C:

(i) A (1 Mark)
(ii) B (1 Mark)
(iii) C (1 Mark)

(b) State the importance of Column breaks as used in word processor. (1 Mark)

(c) Change case is where a user applies so that the text can have some contrast in size. Write the word Digital SIGNAL (2 Marks)

(i) Title case
(ii) Toggle case

(d) Define the following terms as used in charts. (2 Marks)

(iv) Legend
(v) Data range

(e) The table below shows how a kiosk owner uses a spread sheet to keep records in a shop.

	A	B	C	D	E	F
1	**ITEM NAME**	**NUMBER OF ITEMS**	**UNIT COST**	**TOTAL BUYING PRICE**	**TOTAL SELLING PRICE**	**PROFIT**
2	Blue band	*150*	*120*			*3600*
3	Toss	*135*	*50*			*1350*
4	Cow boy	*120*	*120*			*2880*
5	Panga soap	*118*	*50*			*1180*

v) Write a **function** to calculate the total buying price. (2 Marks)
vi) Write a **formula** to calculate the Profit. (2 Marks)
vii) The total buying prices of all items was increased by 12% and the value 12% is placed in cell B6. Using cell addresses with absolute referencing, write a formula to calculate the Total Selling Price in cell E2. (2 Marks)
viii) State the output of the expression =SUMIF(F2:F5,"<1 500")would return.(1 Mark)

18. a. Describe the term prefixing an extra sign bit as used in data representation. (2 Marks)

b. Convert each of the following numbers system.

(i) 0.78125_{10} to binary (2 Marks)

(ii) $3A9_{16}$ to Octal (2 Marks)

c. Perform the following binary operation. (3 Marks)

1010.11 + 111.10 - 101.11

d. Using one's complement, perform the following binary arithmetic leaving the answer decimal notation. $17_{10} - 45_{10}$ (6 Marks)

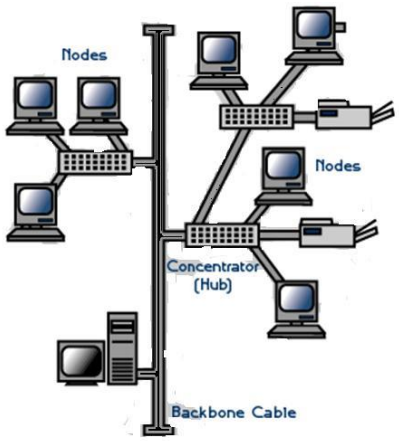
19. a. Distinguish between the following terms as used in data communication (6 Marks)

i. Guided transmission medium and unguided transmission media

ii. Multiplexing and demultiplexing

iii. Logical and physical Topology

b. Below is a diagram of a network topology.



i. Name the above topology (1 Mark)

ii. State two advantages and two disadvantages of using the topology named above (4 Marks)

c. List and explain the two data transmission techniques (4 Marks)

20. a. Distinguish between a computer drive and computer driver (2 Marks)

b. State any four factors to consider when selecting an operating system (4 Marks)

c. Explain any four factors that dictates how the operating system organizes data in a computer (4 Marks)

d. Define the term file in relation to the operating system (1 Mark)

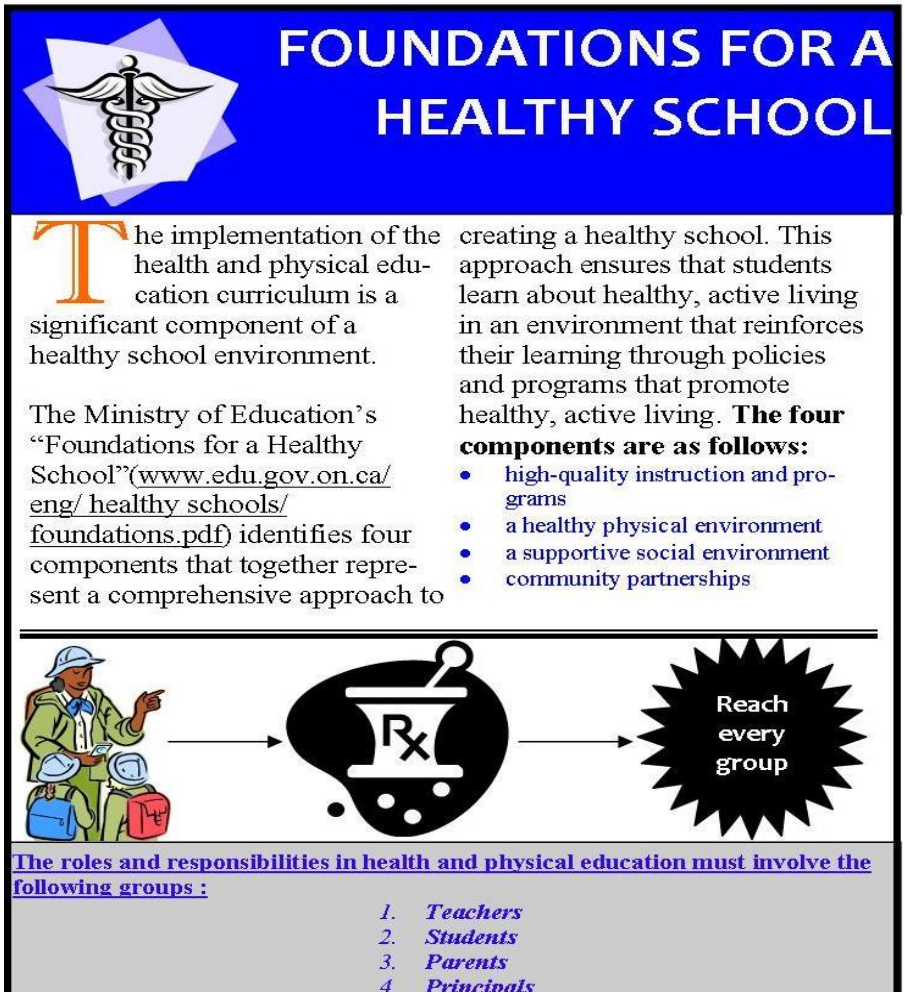
e. The operating system stores details of a file for easy identification and retrieval of files. Explain any four file details the operating system uses to search and identify a file (4 Marks)

f. Distinguish between a menu driven operating system and graphical user interface operating system (2 Marks)

PAPER 2

Question 1

(a) Using Desktop Publishing application program, design the following publication. Name the file as HEALTHY_SCHOOL (19mks)



(b) Prepare the page layout out as follows:

(i) Custom paper size: Width = 11.6", Height = 8.268 2mks)

(ii) Set the margins to 0.787" all round (2mks)

(iii) Divide the page into TWO equal horizontal parts using a ruler guide.(2mks)

(iv) The border of the design should start from the set margins (2mks)

NB: After designing one part of the divided page, TWO copies of the publication should fit into one page in landscape as set up above.

(c) Create a logo as shown to measure **height** 1.213" and **width** 1.118" (3mks)

(d) (i) The main title text (near the logo) should be of **Candara, Font size 26, Bold and Right aligned** (4mks)

(ii) Set-up the rectangular object with the main heading to a background color of **Accent** (1mk)

(e) The text on the lower part of the publication should to be formatted as follows: (3mks)

- Color: **Custom color combination (Red=51, Green=4, blue=252)**
- Alignment: **Left**
- Font: **Size 10**

(f) Format all other text to **times new roman font type** and **font size 12** (2mks)

(g) Apply a style to the line below the text in columns and a thickness of 4.5" in weight (1mk)

(h) Enforce hyphenations to the text in columns (1mk)

(i) The star object with text "Reach every group" should be a 24-point star. Format the text inside to font type **calibri** (2mks)

(j) Make the designs to fit one page (1mk)

(k) Group all objects in the two designs as one. (2mks)

(l) Insert a footer using your name index number, aligned to the center (2mks)

(m) Print the publication. (1mk)

Question 2

The information in the table below was obtained from the books of Safiri Transport Company.

CAR	MODEL	REGNo	YEAR OF MANUFACTURE	DRIVER	IDNO	EMPLOYMENT No	TRIPS MADE	DESTINATION	ALLOWANCE PER TRIP	DAILYPAY RATE
TOYOTA	PICKUP	KAG 725 H	1996	JOHN	122834	DI1223	5	NAIROBI	1250	1500
ISUZU	SALOON	KCB 725 D	2010	MARY	153458	DI9853	3	KERICHO	3400	1500
MAZDA	S/SAGON	KBC 763 L	2006	BETTY	986732	DO4587	15	KISUMU	4300	1500
IVECO	TRUCK	KAG 625 H	1987	KYLE	985443	DO6592	20	KERICHO	3400	1500
TATA	TRUCK	KZG 725	2011	PETER	758849	DI4010	25	KERICHO	3400	1500
JAC	TRUCK	KAA 740 H	1992	JERRY	985873	DO9203	40	NAIROBI	1250	1500
NISSAN	S/WAGON	KAG 552 M	1990	PAUL	857330	DO8345	2	MUHORONI	4100	1500
MAZDA	SALOON	KCB 678 J	2010	SETH	764943	DI9352	15	M0MBASA	8000	1500
MITSUBISHI	TRUCK	KCC 345 F	2006	KATE	934472	DI8754	2	KERICHO	3400	1500
TOYOTA	S/WAGON	KCA 892 U	1987	CALEB	109456	DI6557	1	MUHORONI	4100	1500
TOYOTA	S/WAGON	KAP 544 R	2011	TIM	678842	DO7395	1	KISUMU	4300	1500
ISUZU	S/WAGON	KAP 711 R	1992	PATRICK	764484	DO5764	7	NAIROBI	1250	1500
BENZ	SALOON	KBN 877 C	1991	BRIAN	769973	DI2343	3	KISUMU	4300	1500

a. Using a database management application split the information in the above table into two tables namely vehicle and drivers respectively and save the database as Safiri Transport Company (15 Marks)

b. Create a relationship between the two tables (2 Marks)

c. Create an appropriate form that would be used to enter new records in the driver's table and save it as form driver (7 Marks)

d. Create a query that will display a list of all the drivers who made more than 5 trips to kericho, include all the necessary details. Save it as kericho. (5 Marks)

e. Create a query with a calculated field named total allowance to display the total allowance earned by each driver, include all the necessary details. Save it as allowance(5 Marks)

f. Using both tables, create a query that would be used to complete each driver's earnings and save it as pay roll. (3marks)

25 FOR MARKING SCHEMES INBOX 0724351706

g. Using the payroll query in (f) design a report for Safari Transport Company that would used to calculate total allowance and monthly pay for each driver, assuming that each driver works for 25 days in a month. (7marks)

h. Print vehicle, driver, form driver, kericho, allowance and payroll (6 Marks)

KCSE PREDICTION 6 2022

PAPER 1

SECTION A (40 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION

1. Name the two common types of system units and differentiate them. (2 mks)

2. Define the following characteristics of a computer system. (2 mks)

(i) Versatile

(ii) Reliable

3. State any **three** types of computer programme documentation (3mks)

4. Name any **three** effects of ICT on health (3mks)

5. List **one** function of a bridge in computer network (1mk)

6. a) Convert 1111000110111_2 to its octal equivalent (1mk)

(b) Convert 512.25_8 to its base 10 equivalent (2mks)

7. With an aid of a diagram, differentiate between selection control structure and iteration control structure. (4mks)

8. (a) Auki company is in the process of computerizing its services. List four measures that should be put into consideration to protect the users in their computerized areas.(2mks)

(b) Give two reasons why powder and liquid extinguishers are not recommended unlike gaseous extinguishers. (2mks)

9. Without proper marketing, a business cannot survive in a competitive environment hence computers are being used in a number of ways to enhance marketing. List any three ways of ensuring this is effected. (3mks)

10. Describe the following terms as used in computers. (3mks)

(i) Tab Key

Spacebar

(ii) Clicking

11. Control unit is an essential component of the CPU. Describe the functions of the control unit. (2 mks)

12. (a)Differentiate between buffers and Registers (2 mks)

(b) Speech recognition devices are used to capture natural sound and convert the input into digital form. State two problems related to speech recognition devices. (2mks)

13. Define Solid-state storage and give two examples. (2 mks)

14. (a) Explain how a pixel affects the resolution of a monitor. (1mark)

(b) List two types of computer output on microform (COM). (2mks)

15. Advantages of using ATM cards

SECTION B (60 MARKS)

ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS IN THIS SECTION

16. (a) Define the following terms as used in programming (2 mks)

i) Source code

ii) Object code

(b) Differentiate between Assembler and Interpreter as used in programming. (2mks)

(c) Identify the type of programming language used in the codes below;(1mk)

(i) **1101 1101 1011 1011**
1110 0001 1100 0111

0010 1110 **1011 0011**

(ii)
```
LDA   A, 20
ADD   A, 10
STO   B, A
NOP
```

(d) Draw a program flowchart that would accept three numbers, find their sum. If the sum is greater than 200, it adds 30 to the sum, otherwise subtract 20 from the sum. The program should then display the sum. (5mks)

(i) Draw a flow chart for the above pseudo code. (5mks)

17. (a) In order to generate information from data items, a set of processing activities have to be performed on the data items in a specific sequence depending on the desired result. Draw a well labeled diagram to illustrate data processing cycle. (2mks)

(b) A data entry clerk experiences some common errors when typing. Most of the time, she finds that:

(i) After every calculation, the result is less than the expected number of digits required e.g.345.7896543 the result is given as 345.789.

(ii) Different charactersare typed wrongly, for example instead of typing12873457 she types 128734S7.

Identify the two types of errors commonly experienced by the clerk during data processing in (i) and (ii) above respectively. (2mks)

(c) State two ways a user can ensure data accuracy is maintained during data processing. (2mks)

(d)(i) State three advantages of a computerized filing system as used in data processing.(3mks)

(ii) State two disadvantages of a serial file organization method in computing.(2marks)

(iii) Differentiate between distributed processing and interactive processing modes; stating one application area of each. (4marks)

18. (a) Write the following acronyms in full as used in operating systems.

(i) GUI (½ mark)

(ii) WIMP (½ mark)

(b) State **three** factors considered when choosing an operating system for use in a computer. (3 mks)

(c)An operating system manages and organizes a computer system using the following structures:

File, **Folder** and **Drive**. State the meaning of the underlined items respectively.(3mks)

(d) (i) Differentiate between error handling and interrupt handling as used in operating systems.(2mks)

(ii) State **three** reasons why most network technicians prefer using command line operating systems to configure networking equipment. (3mks)

(e)Disk management is one important aspect in secondary storage in computer systems. Explain the following tools used by an operating system to manage disks in the computer. (3mks)

(i) Formatting

(ii) Partitioning

(iii)Defragmentation

19. (a) Define the following terms as used in networking. (3mks)

(i) Network

(i) Intranet

(ii) Browser

(b) The World Health Organization is global entity that deals with health issues around the world. It has computer networks linking its regional and continental offices using internet. State **two** importance of the internet to such organization. (2mks)

(c) Mr. Zuma, the Principal of a school wishes his school to have an internet connection in a bid to improve its service delivery. Mention **four** internet connectivity requirements that must be present to enable the connection. (2mks)

(d) Explain the following as used in e-mail:
(i) Inbox (1mk)
(ii) Drafts (1mk)

(e) (i) Failure of information systems is a major concern in the security of data in computing systems. State **two** causes of such failure. (2mks)
(ii) Explain the following computer crimes.
(i) Fraud (1mk)
(ii) Industrial espionage (1mk)

(f) Excluding passwords, state **two** other security control measures used to guard against unauthorized access to computers in a network. (2mks)

20. (a) Convert the 1010.011_2 to decimal equivalent. (3mks)

(b) Perform the following number system conversions. (3mks)
(i) $342.25_8$to binary.
(ii) 503_{10} to hexadecimal (3mks)

(c) (i) Compute the binary arithmetic given below: (3mks)
10111 + 10001 + 101
(ii) Using 8-bit notation, perform the **twos** complement of 25_{10} -15_{10}, leaving your answer in binary. (4mks)

PAPER 2

1. Mobilis 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
1.	**Mobile _ Accessories Sales LTD**					
2.		**Product type**				
3.	**Sales Rep.**	**Faiba**	**Gateway**	**Vodafone**	**SAF**	**Total Sales**
4.	Kipkulei	24000	37500	39500	49500	
5.	Tom	15000	26500	21500	25500	
6.	Sharon	5500	14800	3500	16500	
7.	Oscar	7000	15500	14500	64500	
8.	Linda	11000	69000	2200	64500	
9.	Danelaw	33500	12000	14500	23500	
10.	Muriithi	15500	80000	17200	23500	

(a) Using spreadsheet package,
(i) Enter the information given in the table above into a worksheet. Save workbook as **MOBILISREPS** 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.

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

(d) 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 mks)

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

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

- Title and subtitle:
- ✓ Double underline
- ✓ Font type – Algerian
- ✓ Font size

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

g) 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 CHA

h) Print Sales and CHART. (2marks)

2. **HIGH SEASONS** is a holiday resort firm. It has several branches all over the world. In order to keep track of its employees, a database to organize employee information is required.

(a) Create a database file and save it as **SEASONS** in the removable storage provided. (2 marks)

(b) (i) Create a table containing the following fields: (3 marks)

Field Name	**Field Type**
Employee No.	Auto Number
Date of Birth	Date/Time
Grade	Text

(ii) Make the field Employee No. the primary key and save the table as EMPLOYEES. (3 marks)

(c) (i) Create a form based on the EMPLOYEES table and save it as EMPLOYEES FORM. (4 marks)

(ii) Use the form to enter the records below: (5 marks)

Employee No.	**Date of Birth**	**Grade**

1	5/15/1960	G
2	4/28/1978	H
3	10/30/1972	R
4	12/5/1975	H
5	2/28/1974	G
6	1/3/1970	G
7	11/24/1956	H
8	3/10/1984	G
9	4/4/1956	S
10	8/11/1964	R

(d) Modify the EMPLOYEES table by adding two new fields: (2 marks)

Field Name	**Field Type**
Salary (Shs)	Currency
Address	Text

(e) (i) Create another table containing the following fields: (2 marks)

Field Name	**Field Type**
House ID	Auto Number
Number of Rooms	Number
Location	Text
Rent	Currency

(ii) Make the field House ID the primary key and save the table as HOUSES.(2 marks)

(f) Create a relationship the tables and enforce referential integrity. (6 marks)

(g) (i) Create a query and save it as EMPLOYEES QUERY based on the EMPLOYEES table that would display all the employee's in Grade H, R and their date of birth. (2 marks)

(ii) Sort the records in the EMPLOYEES QUERY in alphabetical of Grade field. (3 marks)

(h) (i) Create a columnar report with portrait orientation from the EMPLOYEES QUERY. Save the report as EMPLOYEES REPORT. (4 marks)

(ii) Enter a function to compute the salaries grand total displayed in the report. (5 marks)

(iii)Insert a header EMPLOYEES IN GRADE H AND R in the report having font size 20 pts to the left of the page. (3 marks)

(i) Print the EMPLOYEES Table, EMPLOYEES FORM, EMPLOYEES QUERY and EMPLOYEES REPORT. (4 marks)

KCSE PREDICTION 7 2022
PAPER 1

1. State any three differences between data and information. (3 Marks)
2. Give any two precautionary measures considered to ensure the safety of computers in a computer laboratory
   (2mks)
3. Explain the following features of a word processor
   (3mks)

(i) Wordwrap
(ii) Textwrap
iii)Thesaurus

4. List the steps that you would use to correct wrongly spelt words in a document using the spell-checking feature. (3mks)
5. Differentiate between the hardware and software components of a computer giving an example of each (4mks)
6. Name any two types of graphs that are supported by spreadsheets (2mks)

7.(a) Define relationship in database? (2mks)

(b)A computer vendor has recommended the use of a computer database to your school for student information. Explain to the Board of Governors what is a database.(1mks)

8.(a) Name any three Functions of a database (3 mks)
b) Give two examples of database systems (2mks)
9.(a) State two advantages of using two's complement. (2 marks)
(b) State any two characteristics of a computer infected by a virus (2 marks)

10.A firm intends to purchase new software. List three items that should accompany the software(3mks)

11. Explain the meaning of each of the following computer crimes: - (3mks)

12.List down 3 similarities between a normal calculator and a computer. (3 marks)
13.(a) The accounts department of a secondary school is using a system that generates invoices that are printed in triplicate using carbon papers.
Name one type of printer suitable for this task. (1mrk)
Give a reason for your answer I (a) above. (1mrk)
(b) Identify three hardware considerations to be made before installing an operating system. (3mrks)
14.(a) State any two advantages and two disadvantages of an email over the Traditional Paper Mail/'Snail Mail' (4 marks)
15.Differentiate the term portability in both hardware and software. (2mrks)

SECTION B (60 MARKS)

Answer question 16 (compulsory) and any other three questions.

16.(a)(i)Name the following types of programming languages. (3 Marks)

(i)_____

```
MOV AX 01
MOV BX 02
ADD AX BX
```

```
Int x ,y,z,p,q,t
if ( a > b ) then
x = y + z ;
p = q + t
else
x = y – z ;
p = q * t
endif
```

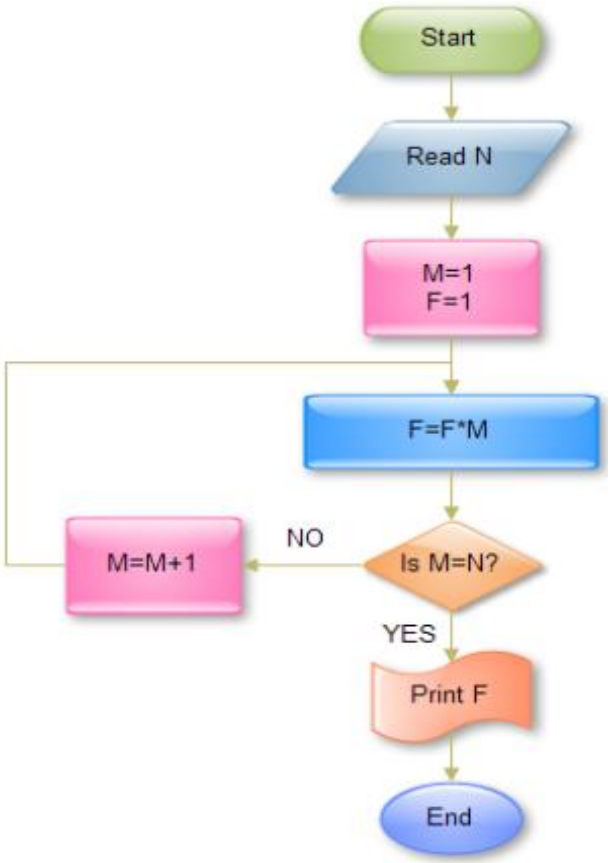
(ii)_____

```
10111011011101101110
11011101011101101110
11011101011101101110
11011101011101101110
```

(iii)_____

(b)State One Advantage and one disadvantage of each of the a(i) above. (6 Marks)

(c) (i)State and explain three types of program development errors (3 Marks)
(ii)Study the flow chart below and determine the value of F when N=3. (3 Marks)



17. (a) Define the following terminologies as used in data representation. (3mrks)

Word

Nibble

Byte

(b)**Complete the following table (9 marks)**

Binary	**Octal**	**Decimal**	**Hexadecimal**
1010111			
	377		
		4552	
			3E2

(c) Using two's compliment, perform the following binary arithmetic leaving the answer in decimal notation. (Use 8bits) (3mrks)

54 - 29

18. (a) distinguish between the following pairs of terms (6marks)

(i) Data verification and data validation

(ii) Data encryption and passwords

(iii) Dry run and bug.

(b) Explain any three change over strategies in system implementation stage (9 Marks)

19.(a) State any three Advantages and any two Disadvantages of Computer Networks (6mks

(b) With aid of a diagram, explain the following Transmission Impairments (9 marks)

20. (a) (i) List four stages of data collection (2mrks)

(ii) Describe any two types of data processing methods (2mrks)
(b) Explain the following file organization methods (4mrks)
(i) Sequential file organization
(ii) Serial organization method.
(c) (i) Define an operating system (1mrk)
(ii) Briefly explain how an operating system: - (4mrks)
Controls Input/Output devices
Maintains security
(d) Explain the difference between a primary key and an index key as used in database.(2mrks)

PAPER 2

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 PREDICTION 8 2022

PAPER I

SECTION A: 40 MARKS

Answer all the questions in this Section.

1.State two reasons for the increased use of Laptop computers in modern workplaces **(2marks)**

2. What precautions would you take in the computer laboratory incase users are complaining of overheating and suffocation. (**2marks)**

3.Convert the decimal number 15.373_{10} to its binary number system equivalent. **(3marks)**

4.With an aid of a diagram describe the difference between Repeat Until and While… Do (**3marks)**

5.State three circumstances which may force an individual to acquire an impact printer instead of non-impact printer. (**3marks)**

6.Sam prepared a five-page brochure of Maseno School using Ms-publisher. He wanted to insert a school badge in each page of the publication. State two methods he need to apply to execute this task. (2marks)

7.State the difference between ones complement and twos complement (**2marks)**

8.State the function of each of the following features of an email software.

(i) Spam (**1mark)**

(ii) Trash (**1mark)**

9.State four benefits of cloud storage in computing. (**4marks)**

10. Describe the functions of the following disk management operations.

(a) Defragmentation **(1mark)**

(b) Partitioning (**1mark)**

11. Describe four ways through which an organization can minimize threats to it data integrity. **(4marks)**

12. Study the following three sections of code and name accordingly (**3marks)**

10101010110	**MOV AL, 10**	**<OL> Chemistry**
01010101010	**MOV DL, 25**	** Biology**
01000010101	**MUL DL**	** Physics </OL>**
10100010110		
(a)	**(b)**	**(c)**

13. Identify how the operating system will label the following drives in case a computer has one floppy drive, one hard disk partition into two and a DVD. (**3marks)**

14. Five students Jane, Beryl, Baroness, Linda, and Jael scored the following marks in mathematics: 45, 76, 34, 65 and 45. The marks were recorded in cell C3 to C7. Write down the most appropriate function that can be used to give those positions so that they can be awarded in descending order. **(3marks)**

15. Using an example explain two main parts of an URL. (**2marks)**

SECTION B: 60 MARKS

ANSWER QUESTION NUMBER 16 ANY OTHER THREE QUESTIONS FROM THIS SECTION

16.

(i) Define the following terms as used in programming. **(3marks)**
   (b) Machine dependent
   (c) Bug
   (d) Syntax

(ii) Give two reasons to justify why most programmers prefer using compilers instead of interpreters. (**2marks)**

(iii) Describe two limitations of machine language. **(2marks)**

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

```
Start
        Count=1
        For count =1 to 5 Do
        Get Value 1 and Value 2
        If Value 1 > Value2 Then
        Maximum =Value1
        Else
        Maximum =Value2
        Endif
        Display Maximum
        Count=Count+1
Stop
```

17.

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

(ii) Convert the binary number $10101111010110111000 01_2$ into its
   (a) Octal equivalent (**2marks)**
   (b) Hexadecimal (**2marks)**

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

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

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

$110001_2+1111_2-11111_2$

18.

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

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

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

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

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

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

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

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

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

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

19.

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

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

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

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

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

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

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

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

20.

(a) Define the following terms.

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

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

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

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

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

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

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

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

(e) Explain the following types of errors.

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

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

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

PAPER 2 (Practical)

Question One

The table below shows data obtained from a hotel room booking database. Use it to answer the questions that follow:

Cust ID	Name	Phone number	Room No	Date of payment	Receipt No	Amount Paid
001	Mercy Kirwa	0722345671	126	23/4/2020	12345R1	7800
002	Stephen Rose	0733123456	347	02/04/2020	78653R2	4500
003	Jotham Mune	0791256435	56	05/08/2020	12364R1	5200
004	Kitanui John	0782345678	78	03/05/2020	12465R5	5678
005	Felix Kimon	0712678905	12	01/11/2020	12766R3	6790
006	Victor Orwa	0711347890	234	10/07/2020	12067R4	5489
001	Mercy Kirwa	0722345671	126	23/4/2020	12345R1	7800
005	Felix Kimon	0712678905	12	01/11/2020	12766R3	6790
004	Kitanui John	0782345678	78	03/05/2020	12465R5	5678
006	Victor Orwa	0711347890	234	10/07/2020	12067R4	5489

a) i) Create a database named **Hotel Details** to store the above data. (4mks)

ii) Split the data into two tables. The tables should be named: "Payment table" and "Personal details". (12mks)

iii) For each of the tables, chose the most appropriate key field. (4mks)

iv) Insert input mask for the **phone number** field such that the numbers are displayed as 0722-345-671. (2mks)

v) Create one to many relationship. (4mks)

b) i) Create a data input screen for each table for inputting the data in the table above. Ensure that the name and title of the screen are appropriate. (4mks)

ii) Use the screens created to enter the records in the table above into the appropriate tables. (8mks)

c) Create a query to extract all customers whose names end with letter "a". Save the query as "END WITH". (4mks)

d) Generate a tabular grouped report showing the total and average of the payments in the payment table. Grouping should be done on the customer's name (5mks)

e) Print the two tables and the report. (3mks)

Question Two

Bama School ordered Computer accessories and the following suppliers provided the following as illustrated below.

	A	B	C	D	E
1	**FName**	**ONames**	**Itemsold**	**Amount**	**Date**
2	Peter	Okada	Mouse	200	12/2/2008
3	James	Mukanda	System Unit	5000	12/3/2008
4	John	Kinyanjui	Keyboard	200	12/4/2008
5	Peter	Okada	CD Writer	2000	12/5/2008
6	James	Mukanda	commputer System	2000	12/6/2008
7	John	Kinyanjui	Mouse	200	12/7/2008
8	Freddrick	Okiring'	Mouse	200	12/8/2008
9	John	Kinyanjui	System Unit	2500	12/9/2008
10	Peter	Okada	Keyboard	200	12/10/2008
11	James	Mukanda	CD Writer	3000	12/11/2008
12	John	Kinyanjui	commputer System	5400	12/12/2008
13	Freddrick	Okiring'	Mouse	200	12/13/2008
14	Peter	Okada	System Unit	3000	12/14/2008
15	James	Mukanda	Keyboard	200	12/15/2008
16	John	Kinyanjui	CD Writer	2500	12/16/2008
17	Freddrick	Okiring'	commputer System	6000	12/17/2008

(a) Enter the data shown above into a spreadsheet and save it as **Bama**. (16 marks)

(b) The word commputer system has been entered incorrectly. Update the information in the spreadsheet. (3 marks)

(c) Format all numeric values to 2 decimal places and use comma separators. (4 marks)

(d) Copy the content of Bama to a new sheet and rename the sheet as **BamaSales**. Enter a label in Cell F1 as **New Amount**. In cell F2 enter a formula to calculate the new amount if the amount went up by a value in cell B18. Copy the formula to the rest of the sheet.(10

(e) Using **BamaSales** find subtotals for each supplier. (6 marks)

(f) Using **BamaSales'** subtotals for each supplier create a labeled bar graph on a separate worksheet. Save the chart as **Supplier**. (8 marks)

(g) Print Bama, BamaSales, Supplier. (3 marks)

KCSE PREDICTION 9 2022
Paper 1 SECTION A [40 MARKS]
*Answer **all** questions in this section*

1. Outline **three** distinctions between a super computer and microcomputer. [3 marks]
2. State four features of fifth generation computers. [4 marks]
3.(a). Explain **two** uses of forms in database design. [2 mark]
(b). i). Define the term control as used in report and form design. (1 mark)
(ii). Explain briefly the difference between bound and unbound controls. (2marks)
4. State any **two** differences between function keys and special keys of a keyboard. [2 marks]
5. In system development, testing is one of the critical stages. Give **three** reasons why the testing phase is critical to the systems developer. [3 marks]
6. Write the following abbreviations in full. [3 marks]
i). BCD
ii). ASCII
iii). EBCDIC
7. State **two** properties that an operating system display about a file. [1 mark]
8. Differentiate between Computer Aided Design CAD and Computer Aided Manufacture (CAM). [4 marks]
9. (a). Distinguish between a primary key and index key as used in databases. [2 marks]
(b). Explain the relevance of foreign key in a database entity. (1 mark)
10. List **three** differences between laser printer and a dot matrix printer. [3 marks]
11. Name an input or output device used in the following tasks. (2 mark)
    a). Capturing still images
    (b). Printing detailed architectural designs
    (c). Playing flight and driving games
    (d). Capture data at ATM
12. What is the use of the search and replace feature in a word-processor. (1 mark)
13. State two ways in which a computer may be used in efficient running of a hospital. (2 marks)
14. The formula = $A4*C$3 was entered in cell D4. What will be the formula if it is copied to cell F10. [1 marks]
15. Name any three methods that can be used to test a program of errors. (3 marks)

SECTION B [60 MARKS
Answer question 16 and any other three questions from this section.

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

(8 mar
(b).What is the difference between looping and selection? (2 marks)
[c]. Name the stage of program development cycle when: [2 marks]
(i). A user guide would be written
(ii). A programmer dry-turn the code
(iii). System charts would be drawn
(iv). Staff training is done
(d). State the three translators used in programming. (3 marks)
17.(a). Define the term data communication. (1 mark)
(b). Explain the following terms as used in data communication. (2 marks)
(i). Bandwidth
(ii). Attenuation
(c). Explain the following three types of computer networks. (3 marks)

i). LAN
ii). MAN
iii). WAN
(d).i). What are robots? (1 marks)
(ii). Outline any four advantages of using robots in industries over human beings. (2 marks)
(e). Describe the following communication modes giving an example in each case. (6 marks)
(i). Simplex
(ii). Half duplex
(iii). Full duplex
18. [a].List two characteristics of good information. [2 marks]
(b(i). What is a database management system? [1 mark]
(ii). State and explain three database models. (3 marks)
c). Describe the following types of files.
(i). Master file (2 marks)
(ii). Backup file (2 marks)
(iii). Transaction file (2 marks)
d). Explain the file organization methods given below.
(i). Serial (1 mark)
(ii). Indexed sequential (1 mark)
(iii). Random (1 mark)
19. (a). A shopkeeper of a small shop at Longisa has bought desktop computer to assist him in performing his business activities. He has been advised that before he can use it to work he has to install it with an operating system. State any six factors to consider when choosing the operating system. [6 marks]
b). With reference to disk management explain what is meant by the terms below.
i). Formatting (1 mark)
ii). Defragmentation (1 mark)
iii). Disk partitioning (1 mark)
c). Give any two reasons that may make the shopkeeper to partition the computer disk. [2 marks]
(d). 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, it hangs so often alongside abnormal restarting. State any four possible causes for the computer's behaviour. (4 marks)
20. (a) Describe the octal number system. (2 mar
(b). Convert each of the following to the number system indicated:
i). 111.101_2 to decimal; (3 mar
(ii). 14.6875_{10} to binary [4 marks]
(c). Convert the number -17_{10} into 8-bit:
(i). signed magnitude representation; (2 marks)
(ii). two's complement (2 marks)
(d). Perform the arithmetic operation. (2 marks)
$110.11_2 + 11.011_2$

PAPER 2

1.

(a). Type the following letter as it appears in a word processor. Use the mail merge feature to produce copies of the same letter to the persons whose details are given below.
(12 marks)

MWANGAZA HIGH SCHOOL

P.O. BOX 4800

KERICHO

8TH FEBRUARY 2020

<NAME>,<ADMNO>,

<ADDRESS>

<TOWN>

Dear <NAME>

REF: 2019 KCSE RESULTS.

I am happy to inform you that the NOV-DEC Examinations are out. Kindly arrange to visit our school on <Date to visit> at 9.00 a.m in order to know the details. Remember to carry your original KCPE certificate and examination registration card bearing the index number.

Yours's truly,

Head teacher

Data source (List of Candidates)

Name	Adm.No	Address	Town	Date to visit
Mark Otieno	8074	P.O. BOX 24	Sondu	02/03/2020
Kevin Kirui	8189	P.O. BOX 172	Kericho	08/03/2020
Bernard Soi	8065	P.O. BOX 84	Bomet	24/03/2020

Required:

i) **Save** Main document as Main Doc (1 mark)

ii) **Save** Data source as Data source (1 mark)

iii) **Change** the addresses and reference font size to 14pts (1 ½ marks)

2. Perfect Pizza Factory manufactures pasta for distribution to restaurants in Nairobi. Assuming that you are now working for the factory and have been given the following sales data:

	A	B	C	D	E	F	G	H	I

1	Restaurants	July	August	September	October	November	December	Total product sales	Average
2		34567	45671	89650	67222	56113	96282		
3	Nankos	100000	97600	82199	105999	140664	190654		
4	Burgees	96543	97600	82199	105999	140663	190654		
5	Kenge	65000	97600	82199	105669	140663	190654		
6	Tika	103456	97645	82297	105669	140220	175000		
7	Appetos	76899	85400	96709	101324	140882	181230		
8	Marries	98000	97600	82199	105999	140663	190654		
9	Generals	25000	19654	15222	8000	5602	200		
10	My Café	86777	75432	84366	105999	55678	201345		
11	Shooters								
12									
13									
14	Total Monthly sales								

(iv). **Underline** the reference ($^1/_2$ mark)

(v). **Merge** the letter onto main document so as to produce copies for all the three candidates and save it as 'Results 2019'. (6 marks)

(vi). **Print** the letters (3 marks)

(b). **Type** the following text in a word processing software. (22 marks)

INTRODUCTION TO COMPUTERS & OPERATING SYSTEMS

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

operations (Information) Basic characteristics that distinguish a computer from other information processing devices:-

(i) A computer is electronic- That is, all it processing operations are carried out with electrical signals
(ii) A computer can store information for future reference. This is done on temporary basis with memory circuits and permanently with storage devices such as magnetic disks and tape.
(iii) A computer is programmable – unlike other devices built to perform a single function, a computer can be instructed or programmed to perform a variety of tasks.

HOW A COMPUTER OPERATES

Converting the data (raw facts) into information (Organized, usable form) is called data processing.

Data get into the system by means of an input device.e.g keyboard then the computer performs the necessary calculations or manipulations on the data and finally the organized information is displayed by an output device e.g. a monitor.

FUNCTIONS PERFORMED BY A COMPUTER

Although computers have many applications, they can perform only three basic tasks.

(i). Arithmetic functions on numeric data (adding, subtracting, multiplying and dividing)
(ii). Test relationships between data items (by comparing values)
(iii). Store and retrieve data

These skills are really no more than people can do, but the computer can accomplish the task more;

- Faster
- Accurately
- Reliably

Required:

(a). **Align** the title to the centre and underline it. (1 marks)
(b). **Add** border to the title (2 marks)
(c). **Replace** all the Roman numbers with bullets. (2 marks)
(d).
(i) Insert the footer "End of Term One Examination 2020". (2 marks)
(ii) Insert the header "Your name and index No" (2 marks)

KCSE PREDICTION 10 2022
PAPER 1

1. State **one** function of each of the following.
(a) Peripheral devices (1 mark
(b) System software (1 mark)
2. Give importance of having the following in computer laboratory;- (3marks)
i) Standard furniture in the laboratory
ii) Antiglare screen/ monitor
iii) UPS
3. Describe future trends in microcomputers in relation to:
(a) Hardware (2 marks)
(b) Software (2 marks)
4. Explain the meaning of BACKUP (2mks)
5. Differentiate between the following terms as used in word processing. (3marks)
(a) Drop Cap and Case
(b) Superscript and subscript
(c) Indent and tab
6. State two advantages of electronic spreadsheets over manual worksheets. (2marks)
7. (a) State and explain any **one** type of computer processing file. (1mark)
(b) List any **two** file organization methods (2marks
8. Define a primary key field (3marks)
9. State the two requirements of computer program testing (2marks)
10. A computer studies form one student was requested to format his diskette in Windows XP Operating System environment. Instead, he selected and formatted the hard drive by mistake.
(a) Explain why the student had to format his diskette. (1 mark)
(b) Explain a possible consequence of the mistake made by the student. (1 mark)
(c) Describe **two** situations when the computer user will be required to format a storage media. (1 mark)
11. Worksheet cells are referenced using the column letter and row number e.g. D2 is cell in column D and row 2.
Use the sample worksheet provided to answer the questions below.

	A	B	C	D	E	F
1	Moth	Jan.	Feb	Mar.	April	Total
2	Fees	460	460	460	460	
3.	Food	300	350-	305	270	
4.	Electricity	100	100	100	100	
5.	Fuel	150	150	150	150	
6	Transport	38	270	150	300	
7	total					

a) Write down the data type that is stored in cells C5 (1mark)

b) What cell contains the data items representing transport for the month of February? (1mark)

c) Write down the formula that may be used to compute the total in cell F6. (1mark)

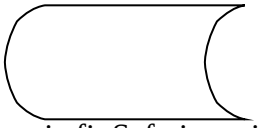
12. What is deadlock in reference to operating systems (2marks)
13. One way in which computing technology has impacted positively on society is the ease of communication through the e-mail. State **two** disadvantages of e-mail. (2 marks)
14. Differentiate between baseband and broadband signal as used in networking. (2marks)
    a) Baseband signal
    b) Broadband signal
15. Explain two ways of protecting data and information against unauthorized access. (2marks)

SECTION B (60 MARKS)

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

16. a) State the function of the following symbols as used in the flowchart.

(i)  (1 mark)

(ii)  (1 mark)

(b)To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safaricom 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 8pm-0.8 Kshs
-Between 8pm to 1 am -4Kshs
-Between 1 am to 8am- 1Kshs

Internal calls to other networks are charged at a fixed rate of Kshs 7 between 8am to 8pm and Kshs 5 the rest of the day. International calls are charged at a rate of Kshs 25 between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.
Mr. Wasswa Baale a business man who makes both internal and international calls would like to make maximum use of this tariff.

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. (7 marks

(c) Design a flowchart for the pseudo code in 16(a) above. (6 marks)

17. Perform the following binary arithmetic and give your answers in decimal notation:
    (i) 1010.101 + 11.011 (3marks)
    (ii) 1010.011 – 11.011 (3marks)
    (b) Covert the following numbers into their binary equivalents
    (i) 0.5625_{10} (3marks)
    (ii) 0.3125_{10} (3marks)

c) Using four – bit twos compliment, perform the following arithmetic (3marks)
101_2-111_2

18. A school computer laboratory is scheduled to undergo major renovations. The lab is schedule to receive new computer whose specifications are given below:-
    Pentium IV 2.8GHz processor
    40GB HDD
    3 ½ 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:- (2marks)
    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 (1mark)

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. (1mark).

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

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

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

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

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

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

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

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

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

19. a) The growth and widespread use of computers and its related technologies has led to job displacement, creation and replacement. Define the following terminologies.

(i) Job displacement (1mark)

(ii) Job creation (1mark)

(iii) Job replacement (1mark)

(b) Natural language processing is an area of computer systems evolution.

(i) Differentiate between natural language processing and voice input/output. (2marks)

(ii) State any **two** difficulties of implementing natural language processing. (2 marks)

(c)(i) Explain **three** ways in which computers and related technologies can increase stress in the workplace. (3 marks)

(ii) Suggest **two** ways in which computer related stress in the workplace can be minimized. (2 marks)

(d)State any **three** examples of Internet use that may be considered morally wrong. (3 marks)

20. Define the following terms

(i) Database (½mark)

(ii) Database management system (½ mark)

(iii)Hierarchical database (1mark)

(iv)Relational database (1mark)

(v) Network database (1mark)

(b) List the advantages of using an electronic database system for storage of data over the file approach. (4marks).

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

	A	B	C	D	
1	WESTERN COMPBOOK CENTRE SALES				
2	*BOOK TITLE*	*PRICE PER BOOK*	*BOOKS SOLD*		
3	DBASE IV	400.00	145		
4	LOTUS FOR DUMMIES	460.00	15		
5	OFFICE WORD IN 3 DAYS	300.00	65		
6	LEARN C++ IN 3 DAYS	700.00	100		

7	TEACH YOURSELF PASCAL	700.00	200	
8	COMPUTER STUDIES	500.00	300	
9	THE CLEVER FOOL COMUTER	300.00	10	
10				

i) Write down the formula that can be used to find the price of the most costly book. (1mark)
ii) Write down the formula that can be used to determine the total sales for the book titled COMPUTER STUDIES (1mark)
iii) Write down the formula that can be used to determine the average price of the books.(1mark)
iv) Write down the formula in cell D6 that can be used to find the new price per book if they went up by a percentage written in cell B 10 and the formula has to be entered only in cell D3 then be copied to others. (1mark)
v) Write down the output in D7 if in B6 is 10% (1mark)
(d) State any four advantages of using an electronic spreadsheet as compared to a traditional worksheet. (2marks)

PAPER 2
QUESTION ONE

(a) Type the following text using a word processor, font size 12', line spacing 1 1/2 and save it as ACM1. (20mks)

Congress Endorses Computer Science Education as Driver of Innovation, Economic Growth

AC (1 0/21/0 9,)

ACM and several computing community partners commend the U.S. I-House of Representatives passage of a resolution to improve the visibility of computer science as a transforming industry that propels technology innovation and improves economic productivity. The House resolution designates the week of December 7 as 'National Computer Science Education Week' and calls on educators and policymakers to improve computer science learning at all education levels and to encourage increased participation in computer science.

ACM is working with Microsoft. Google, Intel. the Computer Science Teachers Association (CSTA), the National Center for Women & Information Technology (NC WIT), and the Computing Research Association to improve awareness that computer science education is a national priority. "National Computer Science Education Week will help us draw attention to the need for an educational system that values computer science as a discipline and provides students with critical thinking skills and career opportunities," says ACM Education Policy Committee chairBobby Schnabel, dean of the School of Informatics at Indiana University.

CSTA executive director Chris Stephenson notes the vital role that computing plays in people's daily lives, and stresses the urgency of building a strong computing workforce. "We need to expose K- 12 students to computer science concepts to help them gain critical 21st century skills and knowledge. and we're grateful for Congress' recognition of this need as a national priority," Stephenson says.

NCWI CEO and co-founder Lucy Sanders says the annual commemoration of National Computer Science Education Week can strengthen efforts to inform students, teachers, parents, and the public about how computer science enables innovation in all science, technology, engineering, and mathematics fields and creates economic opportunities.

REQUIRED

(a) (i) Format the heading as follows: Uppercase, size 16', double underlined. (3mks)

(ii) Apply two columns in the second paragraph. (2mks)

(iii) Indent the third paragraph to 0.5" to the right and 0.5" to the left. (2mks)

(iv) Save the document as ACM2. (2MKS)

(b) (i) Copy ACM1 into a new document. (2mks)

(ii) Apply drop cap in the first paragraph. (2mks)

(ii) Apply page break in the document so that each paragraph is in its own page. (2mks)

(iii) Number the pages in the document. (2mks)

(iv) Enter the following in page two of the document. (3mks)

PACKAGE	**DURATION**	**FEES**
WORD		**1500**
EXCEL	**20 HOURS**	
ACCESS	**25HOURS**	**3000**
DTP	**15 HOURS**	**3500**

(iv) Save as ACM3. (3mks)

(c) Print ACM1, ACM2 and ACM3. (3mks)

QUESTION TWO

1. a) The following information was extracted from a mark book maintained by a class teacher of a certain school. Using a spreadsheet, create a worksheet that contains the information and save as Test 1**.**

(5 marks)

NAME	MATH	ENG	KISW	BIO	PHY	CHEM
Muigai K.	85	81	60	92	90	74
Wakhisi N.	81	50	48	56	68	52
Otieno J.	62	71	44	55	60	60
Nasimiyu C.	70	42	51	48	62	88
Wamaitha D.	21	44	30	72	22	40
Kimeli F.	48	55	31	45	60	50

Chepchumba G.	98	54	65	30	40	45
Nasong'o R.	48	52	28	47	50	54
Saidi A.	49	56	65	58	50	55
Okiya S.	65	74	45	80	42	50

b) Create four new columns and label them as TOTAL, MEAN, GRADE and REMARK respectively. (2 marks)

c) i) Using formulas compute the total and mean for Muigai K. and copy it to other cells to generate values for the other students. (4 marks)

ii) Use an appropriate function to determine a grade and a remark for Muigai K. Use the following grading system to determine the student's grade: (8 marks)

MEAN	GRADE	REMARK
80 to 100	A	Excellent
70 to 79	A-	Very Good
60 to 69	B	Good
40 to 59	C	Fair
Below 40	F	Fail

ii) Copy the formulas to other cells in order to generate total, mean, grades and remarks for all the other students. Save your work as Test 2. (3 marks)

iii) Format the mean marks to one decimal place. (1 mark)

d) The class teacher wishes to determine those students who are likely to qualify for a course in medicine. For a student to qualify, he/she must have scored:

- 70 marks and above in Biology,
- 60 and above in either Chemistry or Physics,
- 50 and above in either English or Kiswahili.

Create a new column labeled MEDICINE and use an appropriate function to determine those students who qualify. If a student qualifies, the function should return "QUALIFY", otherwise it should return "UNQUALIFIED". (5 marks)

e) Create a new column and label it as POSITION. Enter a function in cell L2 and copy it to other cells to determine the position of each student. (4 marks)

f) Apply borders to your worksheet as follows:

i) Double outline border. (1 mark)

ii) Single line for inside vertical and horizontal borders. (1 mark)

g) Copy the data on sheet1 to sheet2 and rename the sheet2 as QUALIFY. Filter the worksheet to display the records of the students who qualify. (4 marks)

h) Create a bar graph on a separate sheet to compare the performance of the first four students in the six subjects. Label the bar graph appropriately. (4 marks)

i) Launch a word processor and type the following letter. Save as Confirmation. (3 marks)

15/03/2018

Dear <<NAME>>

We are pleased to inform you that you qualify to pursue a course in medicine having satisfied the admission board by posting a mean of <<MEAN>> and a mean grade of <<GRADE>> respectively. This performance placed in position <<POSITION>>.

Thanks.

Yours faithfully,

J. J. Mwanamoshi

DIRECTOR

j) Merge the letter in (i) above (Confirmation) and the information on sheet 2 (QUALIFY) to generate letters for those students who qualify for a course in medicine. Save as Confirmation letters.(4 marks)

k) Print Test 1, Test 2, Confirmation and any **one** of the confirmation letters. (2 marks)