

451/1  
Computer Studies  
Paper 1  
(THEORY)  
2 ½ Hours

**2021 TRIAL 3 OCT/NOVEMBER INTERNAL EXAMINATION**

*Kenya Certificate of Secondary Education (K.C.S.E.)*

Name.....

Adm No.....

Stream.....

Date

Sign .....

**INSTRUCTIONS TO CANDIDATES**

- ⇒ Write your name and index number in the spaces provided above
- ⇒ Sign and write your name in the spaces provided above
- ⇒ This paper consists of **two** sections; A and B
- ⇒ Answer all questions in section A
- ⇒ Answer question 16 and any other three questions from section B
- ⇒ All answers should be written in the spaces provided on the question paper

***For official use only***

Section	Question	Candidates score
A	1-15	
B	16	

	17	
	18	
	19	
	20	
TOTAL SCORE		

**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)

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2. State the purpose of each of the following memories in a computer system. (2 marks)

(i) ROM

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(ii) RAM

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3. State two factors that one would consider when selecting data entry method in computing. (2 Marks)

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4. Describe the following types of printers and state one application area of each.(3Marks)

(a) Dot matrix

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(b) Thermal printer.

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5. Differentiate between in-house software and freeware. (2 Marks)

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6. Give two importance of feedback mechanism in systems (2 Marks)

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7. With an aid of a diagram, explain one-to-one database relationship. (2 Marks)

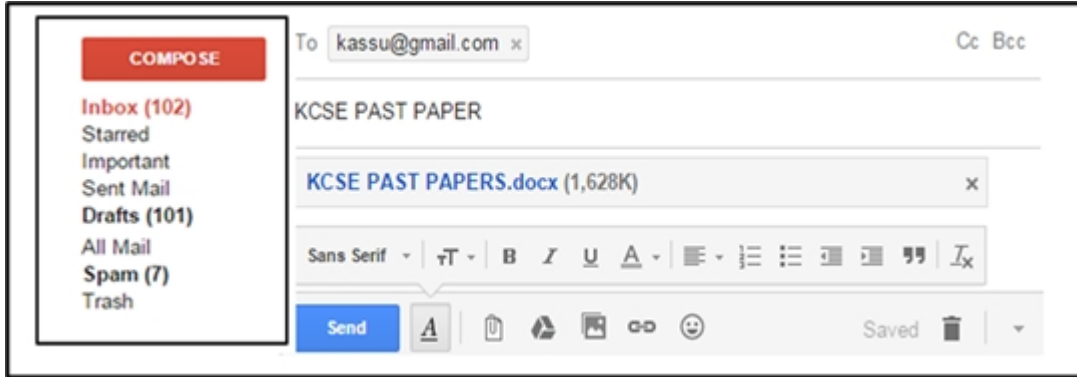
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8. KASSU Secondary School intends to set up internet connection in their school for e-learning purposes. Advise the school management on four internet connectivity requirements that is required for them to be able to access internet. (2 Marks)

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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

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(b) Spam

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(c) Inbox

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10. State two ways in which users in an organization can be a security threat to data in an information system. (2 Marks)

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11. State three negative impact of information communication technology on the Environment. (3 Marks)

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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.

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b. Sort file.

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13. State three responsibility of a Database administrator in an organization. (3 Marks)

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14. With an example for each, describe how computers are used in the following areas of education; (3 Marks)

a. Simulation

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b. Tutorial

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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)

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

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**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)

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

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

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

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

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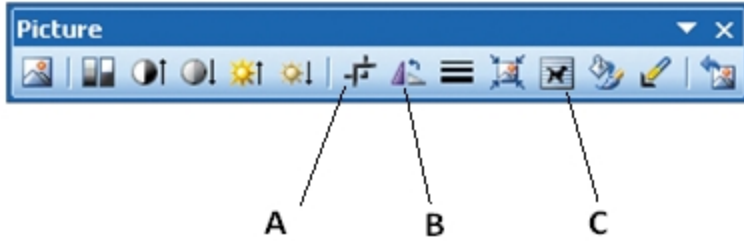
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ii. Draw a flow chart for the above pseudocode (5 Marks)

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)

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(ii) B (1 Mark)

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(iii) C (1 Mark)

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

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(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

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(ii) Toggle case

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

(i) Legend

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(ii) Data range

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(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

(I) Write a **function** to calculate the total buying price. (2 Marks)

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(II) Write a **formula** to calculate the Profit. (2 Marks)

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(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)

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(IV) State the output of the expression =SUMIF(F2:F5,"<1 500")would return.(1 Mark)

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

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b. Convert each of the following numbers system.

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

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

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

$$1010.11 + 111.10 - 101.11$$

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

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

- i. Guided transmission medium and unguided transmission media

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- ii. Multiplexing and demultiplexing

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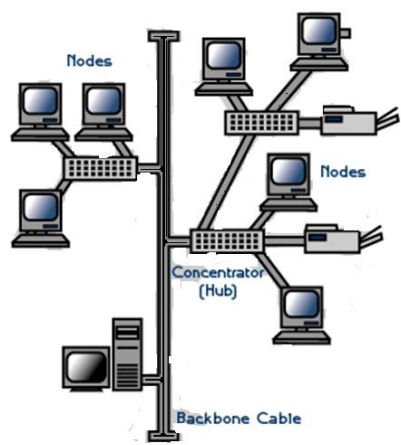
- iii. Logical and physical Topology

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b. Below is a diagram of a network topology.



i. Name the above topology (1 Mark)

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

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

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

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

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

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

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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)

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

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