

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education



Paper 1

451/1

COMPUTER STUDIES (Theory)

Nov. 2023 - 2½ hours

Serial No.

10365538

Name: **Index Number:**

Candidate's signature: **Date:**

Instructions to Candidates

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- This paper consists of two sections; A and B.
- Answer all the questions in section A.
- Answer question **16** and any **three** questions from section **B**.
- All answers should be written in the spaces provided on the question paper.
- This paper consists of 12 printed pages.**
- Do not remove any pages from this booklet.**
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- Candidates should answer the questions in English.**



For Examiner's Use Only

Section	Question Number	Maximum Score	Candidate's Score
A	1 - 15	40	
	16	15	
B		15	
		15	
		15	
Total Score		100	



Turn over

SECTION A (40 marks)

Answer *all* the questions in this section.

- 1 State the meaning of each of the following terms used in computers: (1 mark)



(a) Data;

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(b) Byte.

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- 2 List four peripheral devices that may get powered from computer ports. (2 marks)

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State **three** requirements that a computer system must have in order to be used for video conferencing. (3 marks)

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- 4 Explain each of the following terms used in computer display unit: (2 marks)

(a) pixel;

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(b) Resolution.

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- 5 A company purchased a computer software. State **three** reasons why the company should be provided with the software documentation during the purchase. (3 marks)



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- 6 State **three** reasons why computers in operations require reliable power supply. (3 marks)

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- 7 State **two** uses of computer simulation in education. (2 marks)

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- 8 State **two** database objects that may be used to modify a record in a database. (2 marks)

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- 9 Differentiate between *menu driven interface* and *graphical user interface* in respect to operating system. (2 marks)

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- 10 State **three** differences between *impact printer* and a *non-impact printer*. (3 marks)

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- 11 Explain a circumstance that may lead to the use of crop tool in a word processing document. (2 marks)

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- 12 State **three** benefits of a distributed operating system. (3 marks)



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- 13 The emergence of COVID-19 pandemic led to many organizations in Kenya to embrace teleworking approach.

- (a) State the meaning of the term *teleworking*. (1 mark)

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- (b) State **two** benefits that the organizations gained from using this approach. (2 marks)

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- 14 State **two** advantages of using templates when creating documents in word processing. (2 marks)



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- 15 Explain a circumstance that may lead to the occurrence of each of the following errors during data processing:

(a) Truncation error; (2 marks)

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(b) Rounding error. (2 marks)

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SECTION B (60 marks)

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

- 16 (a) State **two** common features of the fourth generation programming languages. (2 marks)



- (b) A student was advised to design a program before coding. State **four** reasons for this advice. (4 marks)

- (c) In a computer game, a player is required to guess a winning number. If the number guessed is 10, the player is declared a winner and the game ends. If the number guessed is not 10, the player is notified to try again. When the number of trials exceed 4, the player is notified and the game is terminated. Draw a flow chart to represent the algorithm of this game. (9 marks)



- 17 (a) A web company offering E-learning services intends to hire a web administrator. Explain **two** roles the personnel is expected to perform in the company. (4 marks)

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- (b) Mundani cooperative society receives supplies of cereals from farmers. The data for the supplies made is accumulated for processing of payments every end of the month.

- (i) Identify the data processing mode suitable for computing farmers payments. (1 mark)

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- (ii) Explain **two** advantages of the data processing mode identified in (i). (4 marks)

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- (c) **Figure 1** shows a screenshot of a user interface in a computer. Study it to answer the questions that follow:

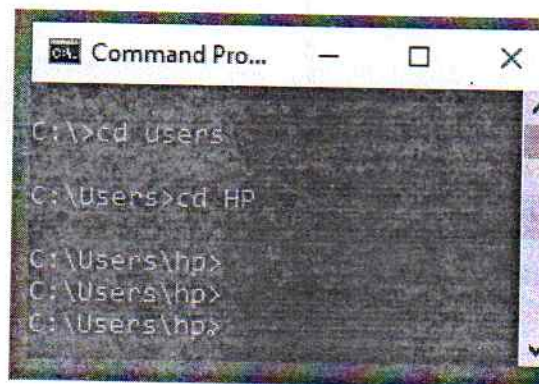


Figure 1

- (i) State the category of an operating system exhibited by this type of user interface. (1 mark)

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- (ii) This type of operating system has become unpopular amongst computer users. State **three** reasons for this trend. (3 marks)

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- (d) Explain a circumstance under which the right button of a computer mouse may be used. (2 marks)

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- 18 (a) Explain the meaning of each of the following terms as used in systems development:

- (i) Integration testing; (2 marks)

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- (ii) Stress testing; (2 marks)

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- (iii) Usability testing. (2 marks)

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- (b) State **three** activities carried out in each of the following phases of system development:



- (i) Analysis; (3 marks)

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- (ii) Design. (3 marks)

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- (c) Distinguish between a *user manual* and a *reference manual* as used in systems development. (3 marks)

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- 19 (a) **Figure 2** shows the transmission of data in a computer network. Study it to answer the questions that follow:

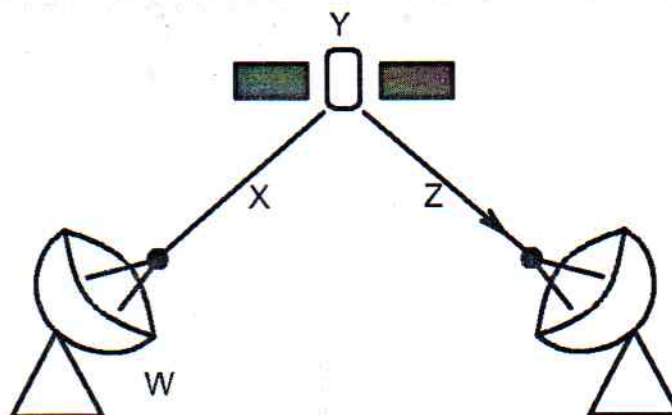


Figure 2

- (i) Identify the components labelled W, X, Y and Z. (2 marks)

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- (ii) Explain **two** reasons why a school in a remote location may adopt this technology for its internet connectivity. (4 marks)

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- (b) (i) Convert the decimal number 70.25 to binary number system equivalent. (4 marks)

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(ii) Using two complement evaluate $1010_2 - 11101_2$.

(5 marks)

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20 (a) (i) State the meaning of each of the following terms used in spreadsheets:

I. cell; (1 mark)

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II. chart. (1 mark)

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(ii) State **two** differences between a *function* and a *formula* as used in spreadsheets. (2 marks)

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- (b) State **four** activities performed on the Internet that may lead to moral degradation in our society. (2 marks)

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- (c) Mawingo intends to replace a processor in his home computer. State **two** factors he should consider before the replacement. (2 marks)

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- (d) Spiidy Limited, an agency company intends to offer booking services on behalf of tour companies through an online system.

- (i) State **three** reasons why the agency should have their database management system linked to the online system. (3 marks)

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- (ii) Explain **two** reasons why the online system may be preferred by the agency. (4 marks)

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