



451/ 1

Paper 1

Computer Studies - (Theory)

T3 2024 – 2 hours

Name Adm Number.....

Candidate's Signature Date

INSTRUCTIONS TO CANDIDATES

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

FOR EXAMINER'S 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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(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 MKS)

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

16. To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to 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 2pm -0.8 Kshs
- -Between 6 to 1 am -4Kshs
- -between 1 am t 8am - 1Kshs

Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

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

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

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

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

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

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

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

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

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

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

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

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b) Convert 11011011111.1111_2 to:

i) Octal (2marks)

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ii) Hexadecimal (2marks)

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iii) Decimal (2marks)

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

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

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

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

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

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

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ii) Explain the importance of requirement specification phase of Systems development. (2marks)

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c) Explain **TWO** reasons why a new system is tested before implementation. (2marks)

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d)i) State two duties performed by a system administrator. (1mark)

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ii) The principal of a school is attempting to convince his staff to use CAL and CAI software. State one benefit and one limitation of using such software. (2marks)

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e) State one advantage and one disadvantage of using expert systems in medicine(2marks)

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

b) Differentiate between the Internet and World Wide Web. (2marks)

ii) Technology has been blamed for polluting the environment. Explain how computer technology has contributed to this. (2marks)

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

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

i) Split the above structure into **THREE** tables and for each table identify an appropriate primary key. (5marks)

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ii) Design well labeled tables structures and identify foreign keys (3marks)

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