

451/1 COMPUTER STUDIES Paper 1
(Theory)

Mar. 2022 – 2½ hours



Name Index Number

Candidate's Signature Date

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) This paper consists of **two** sections; **A** and **B**.
- (d) Answer **all** the questions in section **A**.
- (e) Answer question **16** and any **three** questions from section **B**.
- (f) All answers should be written in the spaces provided on the question paper.
- (g) **This paper consists of 14 printed pages.**
- (h) Do **not** remove any pages from this booklet.
- (i) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- (j) **Candidates should answer the questions in English.**

For Examiner's Use Only

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

A003



SECTION A (40 marks)

Answer all the questions in this section in the spaces provided.

1. State **two** ways in which a computer could be used in the health care sector other than record keeping. (2 marks)

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2. State **four** operations that may be performed on a file by an operating system. (2 marks)

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3. Explain the term *website* as used in the Internet. (2 marks)

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A003

4. Explain a reason necessitating governments to enact data protection laws. (2 marks)

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5. The following data is to be entered in spreadsheet cells:

(a) 0922 111 000

(b) 31/01/2022

State the cell format, other than the text format, that can be applied to the respective data cells in order to appear as it is. (2 marks)

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6. When an image inserted in a desktop publishing document is selected, handles on its place holder appears. State **three** uses of these handles. (3 marks)

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7. State a circumstance under which dry-run testing is performed when developing a program. (2 marks)

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A003

8. State **two** ways in which data validation is implemented on an input form of a database application. (2 marks)

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9. Mikal has been employed as a computer trainer in an organisation. State **three** roles that she is likely to play in the organisation. (3 marks)

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10. List **three** electronic data processing modes used in computers. (3 marks)

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11. Distinguish between *data collection* and *data capture* as used in data processing. (4 marks)

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12. Describe each of the following features of a graphical user interface operating system:

(a) Pointer (2 marks)

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A003

(b) Desktop (2 marks)

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13. State a circumstance under which each of the following input devices may be used:

(a) Optical character reader (1 mark)

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(b) Optical mark reader (1 mark)

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14. State the characteristics of an impact printer. (3 marks)

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15. Describe each of the following features of a word processor:

(a) Hyphenation (2 marks)

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(b) Status bar (2 marks)

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SECTION B (60 marks)

Answer question 16 and any other **three** questions in this section.

16. (a) The following are segments of programming languages A and B respectively:

A 00100
00111

B SELECT name, class
FROM studentsDetails
WHERE House= "Athi Boys"

- (i) Identify the generation of programming language used in each respective segment. (2 marks)

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- (ii) State **two** advantages of each of the generation of programming language labelled A and B. (4 marks)

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- (b) An organisation intends to increase salaries of employees using the following rates:

Current Salary	Percentage Increment
Greater than or equal to 70 000	5%
Greater than 50 000 and less than 70 000	8%
Less than or equal to 50 000	10%

Write a pseudocode that reads the total population of employees in the organisation and then performs the following for each employee:

- Reads the current salary
- Compute the increment
- Display current salary, increment and the new salary.

Hint: $increment = current\ salary \times percentage\ increment\ rate$

(9 marks)

- (b) A systems analyst intends to study an existing system. State **five** reasons for this study. (5 marks)

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- (c) Distinguish between *usability testing* and *functional testing* as used in system development. (4 marks)

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19. (a) Explain the purpose of each of the following features of a spreadsheet chart:

(i) Legend (2 marks)

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(ii) Data series (2 marks)

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(iii) Data marker (2 marks)

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(b) A school intends to install a computer network. Explain **three** challenges that the school may experience after the installation. (6 marks)

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A003



- (c) Xpat ICT company has been tasked to construct a network for an organisation. Explain **three** factors that the company should consider when selecting the media for the connectivity. (3 marks)

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20. (a) State the functions of each of the following protocols as used in computer network:

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- (i) SMTP (1 mark)

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- (ii) FTP (1 mark)

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- (iii) DNS (1 mark)

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(b) State **two** characteristics of each of the following network topologies:

- (i) Mesh topology (2 marks)

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(ii) Ring topology

(2 marks)

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(c) With the aid of a diagram, describe a centralised computing configuration.

(4 marks)

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(d) Explain each of the following computer security threats:

(i) Social engineering (2 marks)

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(ii) Vulnerability. (2 marks)

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