

451/1

COMPUTER STUDIES

SECTION A (40 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION.

1. (a) Give a reason for each of the following disk management techniques. (1¹/₂ mks) *Nym *
 - (i) Disk partitioning
 - (ii) Disk compression
 - (iii) Disk defragmenting(b) Define the term internet. (1mk) *Nym *
2. (a) Define utility software. (1mk) *Nym *
(b) Describe the use of the following utilities. (3mks) *Nym *
 - (i) Linkers
 - (ii) Debuggers
 - (iii) Loaders
3. (a) Explain the concept of distributed databases. (1mk) *Nym *
(b) Give two advantages of distributed databases. (2mks) *Nym *
4. (a) Write the acronym BIOS in full. (1¹/₂mk) *Nym *
(b) What is the use of BIOS in a computer system. (1mk) *Nym *
5. (a) Briefly describe how the following data security measures function. (3mks) *Nym *
 - (i) Audit trail
 - (ii) Log files
 - (iii) Firewalls(b) Give any two reasons why passwords may not be reliable as security control measures. (2mks) *Nym *
6. (a) Explain two uses of forms in database design. (2mks) *Nym *
(b) i) Define the term control as used in report and form design. (1mk) *Nym *
(ii) Explain briefly the difference between bound and unbound controls. (2mks) *Nym *
7. (a) List any two components of a spreadsheet. (1mk) *Nym *
(b) In a worksheet, the marks scored by ten students are stored in cell B3 to B12.
 - (i) In cell C3, show an expression you would use to obtain positions of the students using marks scored in descending order. (2mks) *Nym *
 - (ii) In cell B13, write an expression you would use to extract the highest score from the marks. (1mk) *Nym *
8. Give the function of a surge suppressor. (1mk) *Nym *
9. Explain the meaning of the term bolding. (1mk) *Nym *
10. The table below shows the records of four students.

Admission number	Sex	Marks	class
026	F	70	4
118	M	40	3
150	F	50	3
152	M	30	4

Given the following logical expression.

IF NOT ((SEX = 'F') AND (MARKS =>50) and (CLASS=3))

Indicate the result of the expression when applied on the record with admission 150.

- (2mks) *Nym *
11. (a) List any two types of signals that can be used in data transmission. (1mk) *Nym *
(b) Explain the concept of “Line of sight” in wireless communication. (2mks) *Nym *
(c) Give a reason why a communication satellite has to rotate at the same rate as the earth. (1mk) *Nym *

- 12. What is a logical error in a program? (1mk) *Nym *
- 13. List any two methods one can use to test a program. (1mk) *Nym *
- 14. (a) Define the term e-mail. (1mk) *Nym *
- (b) Give two disadvantages of using e-commerce rather than the conventional method of carrying out business. (2mks) *Nym *
- 15. (a) Give a reason of formatting a document. (1mk) *Nym *
- (b) Give any two word processor softwares. (1mk) *Nym *

SECTION B (60 Marks)

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

- 16. (a) Explain the following characteristics of an object oriented programming language. (2mks) *Nym *

 - (i) Properties
 - Methods
 - Events
 - Objects

- (b) (i) Give two differences between interpreting and compiling a high level language. (2mks) *Nym *
- (ii) Give an advantage of compiling over interpreting a program. (1mk) *Nym *

(c) The formula of finding the roots of a quadratic expression is given here below

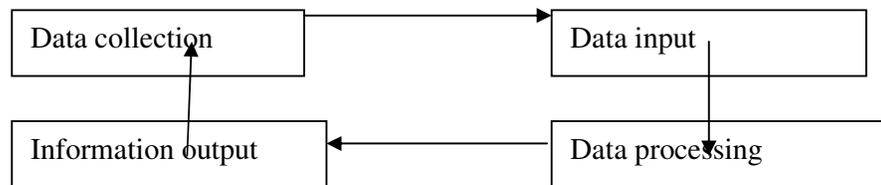
$$\text{root} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In finding the roots, the values a, b, and c, are identified and then the discriminant i.e $b^2 - 4ac$ is calculated.

If the discriminant is negative, then the roots are termed as “imaginary”, otherwise the two roots are calculated using the formula.

- (i) Write a pseudo code that will solve the problem above. The values of a, b and c are entered from the keyboard. (5mks) *Nym *
 - (ii) Write a program using either Pascal or c languages to find the two roots. (5mks) *Nym *
- 17. (a) (i) Explain the meaning of the term file organization. (1mk) *Nym *
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 - (ii) Indicate the method of file access for the following file organisation methods.
 - Indexed sequential
 - Sequential
 - Serial
 - Random

(b) The diagram below shows the data processing cycle.



- (i) List the six stages of data collection in their correct order. (3mks) *Nym *
- (ii) List any four data collection media that can be used to collect data. (2mks) *Nym *
- (iii) List and explain the three methods that can be used to accomplish the task of

- processing data. (3mks) *Nym *
- (c) Explain the difference between:-
 (i) Logical and physical files. (2mks) *Nym *
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- (ii) Transcription and transposition errors. (2mks) *Nym *
18. Organisations use massive resources to develop information systems.
- (a) (i) Define the term information system. (1mk) *Nym *
- (ii) Describe any three elements of an information system. (3mks) *Nym *
- (iii) What is the main purpose of an information system. ($\frac{1}{2}$ mk) *Nym *
- (b) During system analysis, information has to be gathered to enable the analyst understand the system under study.
 (i) Explain two methods available to an analyst to enable him gather information. (2mks) *Nym *
- (ii) Give two advantages and two disadvantages for each of the answers in b (i) above. (4mks) *Nym *
- (c) Documentation for any system developed is important.
 (i) Explain the meaning of system documentation. (1mk) *Nym *
- (ii) Describe any two reasons why documenting a system is important. (2mks) *Nym *
- (iii) What is system review? (1/2mk) *Nym *
- (iv) List two types of system maintenance. (1mk) *Nym *
19. (a) Describe the use of the following buses. (3mks) *Nym *
- (i) Data bus
 (ii) Address bus
 (iii) Control bus
- (b) In relation to the control unit of the CPU, explain the three stages of the fetch execute cycle. (3mks) *Nym *
- (c) A CPU has got registers for internal operations.
 (i) Define the term register. (1mk) *Nym *
- (ii) Describe the functions of the following registers.
 Instruction register
 Working register
 Accumulator. (3mks) *Nym *
- (d) Indicate an area of application for. (3mks) *Nym *
- (i) Joystick
 (ii) Touch screen
 (iii) Graphic tablet
- (e) Explain the difference between softcopy output and hardcopy output. (2mks) *Nym *
20. (a) (i) Define the term telecommuting. (1mk) *Nym *
- (ii) Give two advantages of telecommuting
- (b) (i) What is the difference between a teletext and a videotext for communication. ($\frac{1}{2}$ mks) *Nym *
- (ii) Give two advantages of using teletext / videotext for communication. (2mks) *Nym *
- (c) Describe THREE ways in which computers are used as industrial systems. (4 $\frac{1}{2}$ mks) *Nym *
- In relation to weather forecasting
 (i) Write GIS in full. (1/2mk) *Nym *
- (ii) What is the use of GIS. (1mk) *Nym *
- (e) Use one's complement to calculate. (3 $\frac{1}{2}$ mks) *Nym *