GRADE 10 COMPUTER STUDIES
GOLDLITE SUPPLIES NOV/DEC HOLIDAY BOOSTER WORKBOOK

Six-Week Independent Learning Assignment

Name: _____	Admission/Assessment Number: _____
School: _____	Date: _____

INSTRUCTIONS TO CANDIDATES

1. Answer all questions in the spaces provided or in a clearly labelled exercise book if additional space is required.
2. Read each question carefully and show your working, reasoning, algorithms or code where requested.
3. For figure-based questions, study the given visual description and use the labelled parts or data exactly as shown.
4. Use suitable examples from home, school or the community where a question asks for practical application.
5. Where computer access is available, test programs and practical procedures safely; otherwise, write the expected steps or output.
6. Complete the assignment steadily over six weeks. Keep your work neat and submit all sections together.

ASSESSMENT RUBRIC

Strand	Maximum Marks	Marks Scored
1.0 Foundation of Computer Studies	50	_____
2.0 Computer Networking	25	_____
3.0 Software Development	75	_____
TOTAL	**150**	_____

Work carefully, think critically and apply your knowledge to real-life situations.

SECTION A: FOUNDATION OF COMPUTER STUDIES

QUESTION 1: Evolution and Development of Computers

(a) Explain two ways in which computing devices have changed the way people work or communicate. [4 marks]

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(b) Match each technology to the generation or stage it is most associated with: vacuum tubes, transistors, integrated circuits, microprocessors. Give one feature of each. [8 marks]

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(c) State two reasons why modern devices may use light-emitting diode (LED) panels to display traffic, weather or emergency information. [4 marks]

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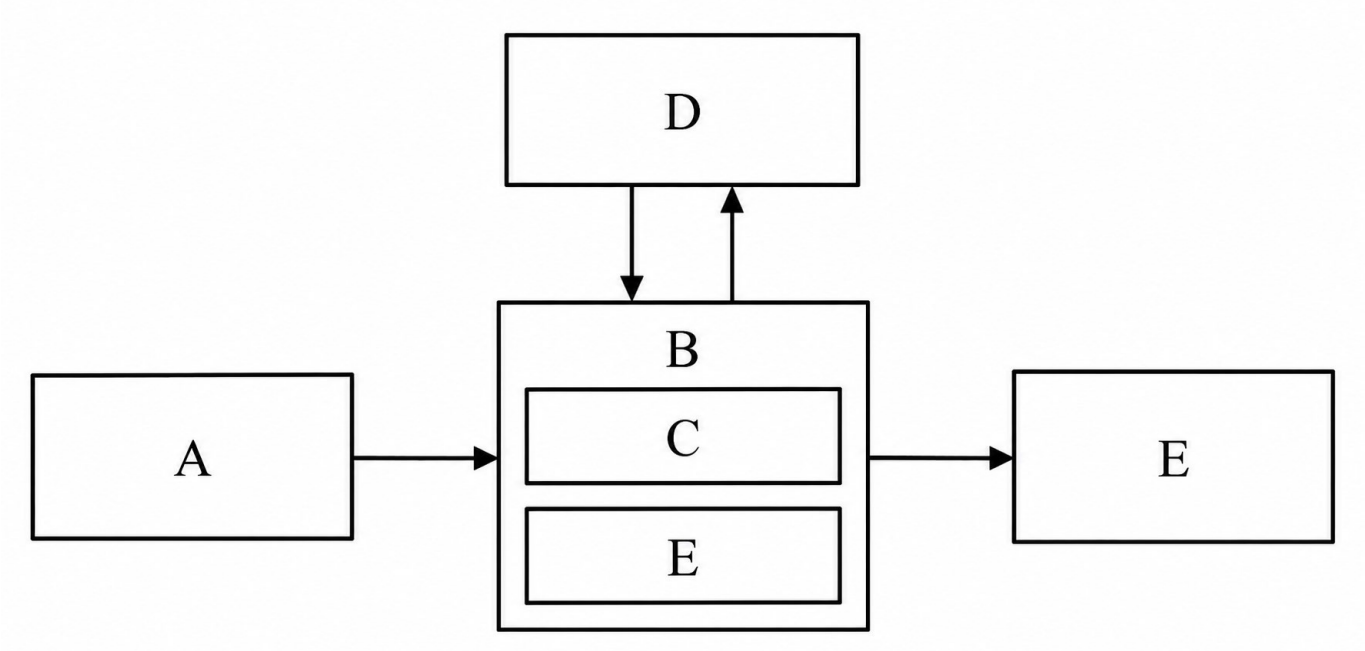
QUESTION 2: Computer Organisation and Architecture

Study the functional model of a computer shown below.



(a) Identify the functions represented by blocks A, B, C, D and E. [5 marks]

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(b) Explain how the input, processing, storage and output functions work together when a learner types and prints a document. [5 marks]

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(c) State two differences between a Reduced Instruction Set Computer (RISC) and a Complex Instruction Set Computer (CISC). [4 marks]

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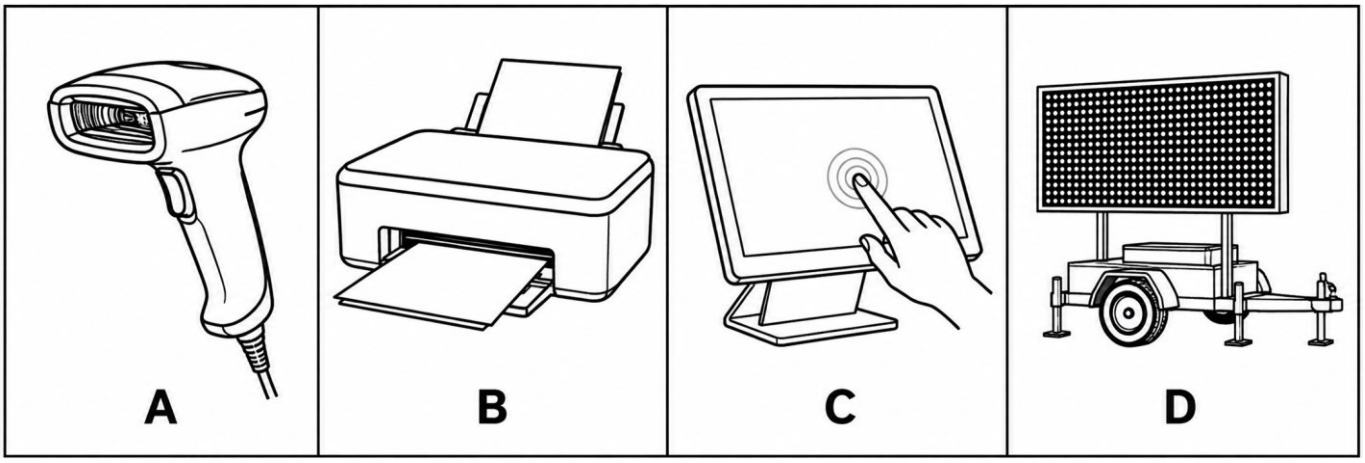
QUESTION 3: Input and Output Devices

Study the device illustrations described below.



(a) Identify each device A–D and classify it as an input device, output device or both. [8 marks]

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(b) Give one suitable use of each device in a school, business or public-safety setting. [4 marks]

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(c) State two advantages and two disadvantages of using QR codes instead of traditional barcodes. [4 marks]

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QUESTION 4: Computer Storage

(a) Differentiate between primary storage and secondary storage, giving two examples of each. [6 marks]

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(b) Explain the difference between RAM and ROM in terms of purpose and whether their contents are retained when power is switched off. [4 marks]

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(c) A school needs to store large video files, carry records between offices and keep a backup off-site. Recommend a suitable storage option for each need and justify each choice. [6 marks]

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(d) Describe four precautions for handling storage media and protecting stored data. [4 marks]

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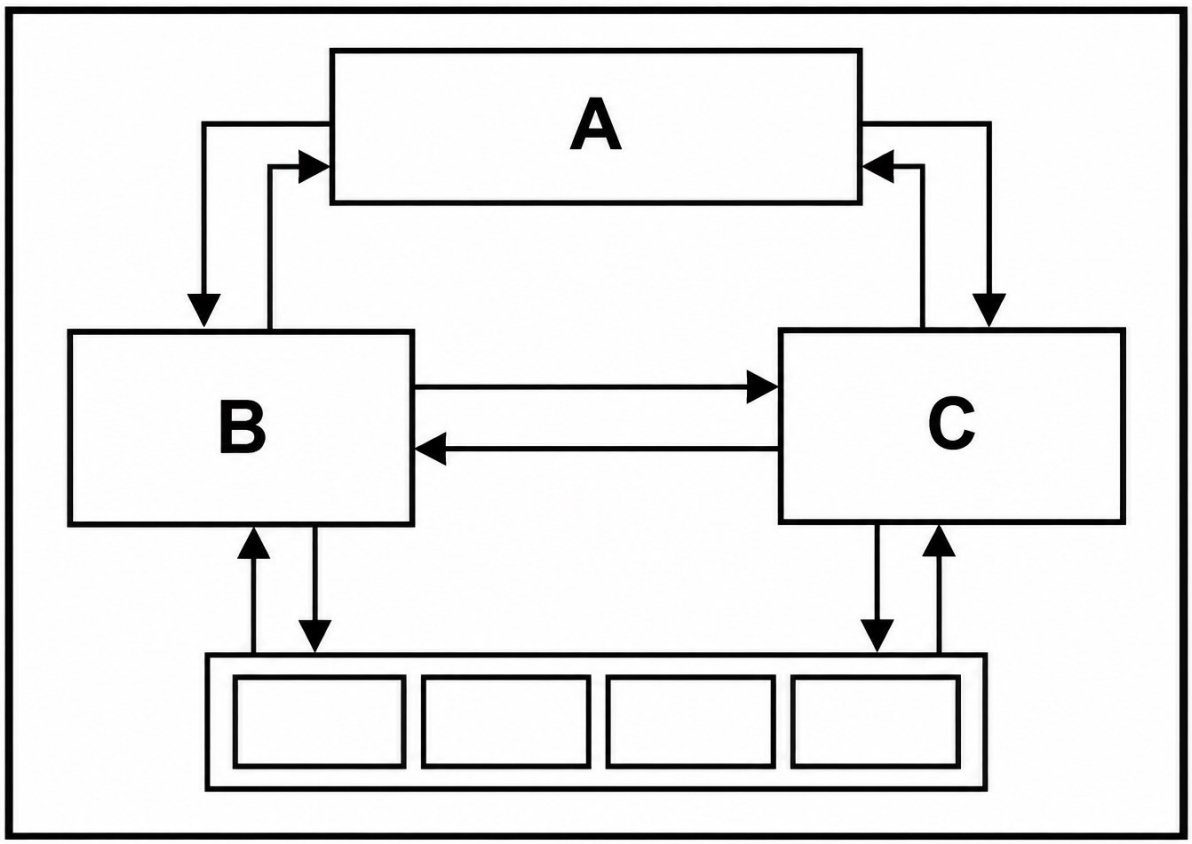
QUESTION 5: Central Processing Unit

Study the simplified CPU diagram below.



(a) Name the CPU components represented by A, B and C and state one function of each. [6 marks]

(b) Describe the main stages of the fetch-decode-execute cycle in the correct order. [6 marks]

(c) State four factors you would consider when choosing a CPU for a school computer laboratory. [4 marks]

QUESTION 6: Operating Systems

(a) Explain four functions performed by an operating system. [4 marks]

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(b) Distinguish between a single-tasking operating system and a multitasking operating system, and between a single-user and a multi-user system. [4 marks]

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(c) Write the steps you would follow to create a folder, rename it, copy a file into it and back up the folder on a computer. [6 marks]

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(d) A computer repeatedly displays an error and a connected printer does not respond. Describe the steps you would take to investigate the problem safely. [4 marks]

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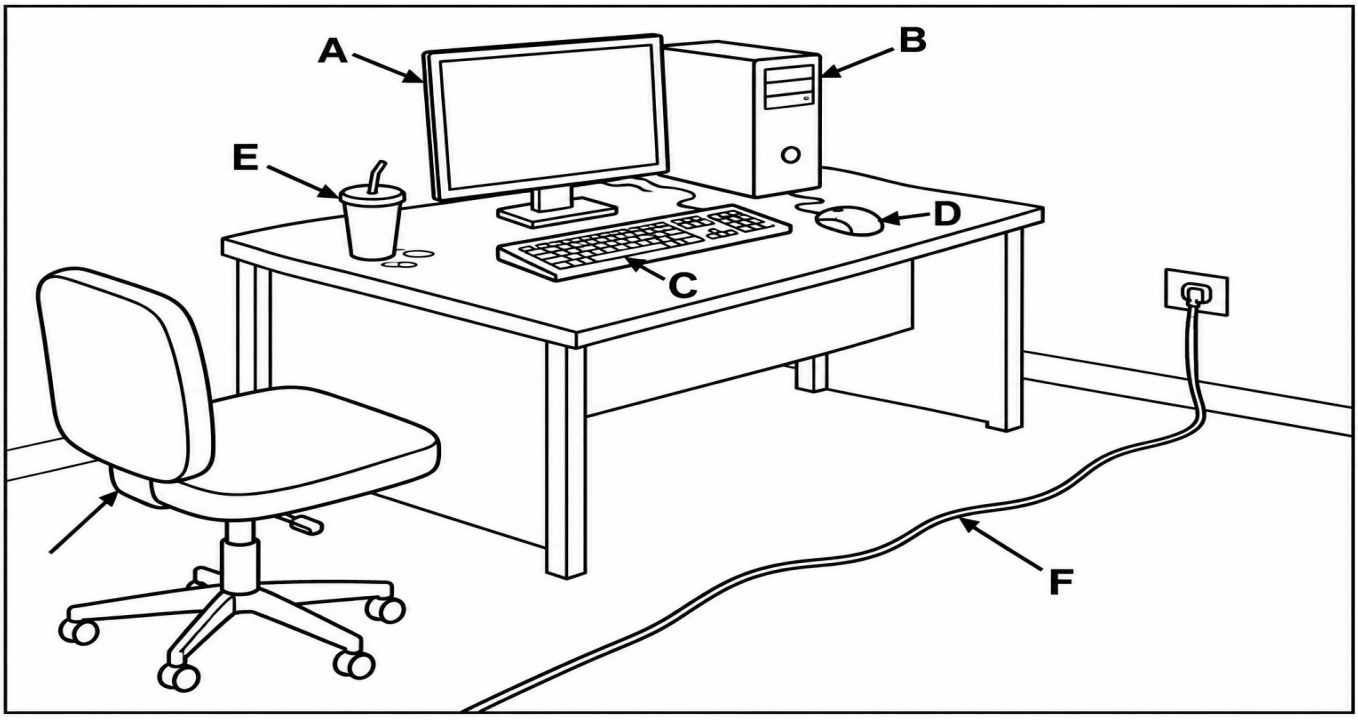
QUESTION 7: Computer Set-up and Safety

Study the computer set-up illustration below.



(a) Identify four safety or ergonomic problems shown in the illustration. [4 marks]

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(b) For each problem identified in (a), suggest one practical corrective action. [4 marks]

(c) Explain how to connect a peripheral device to a computer safely, including precautions before handling cables and ports. [4 marks]

SECTION B: COMPUTER NETWORKING

QUESTION 8: Data Communication

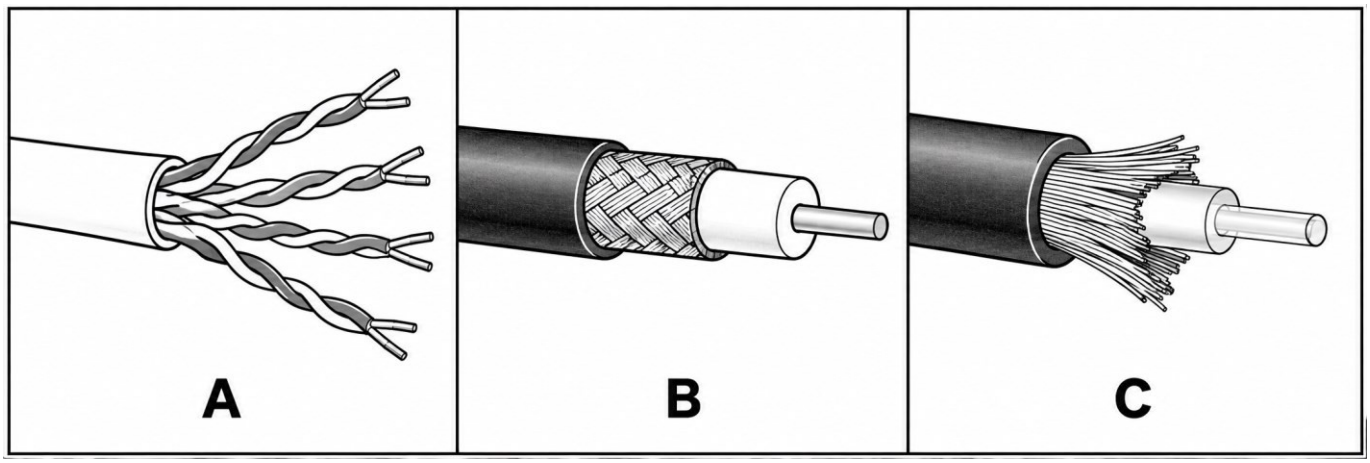
(a) Define data communication and explain the roles of sender, receiver, message, medium and protocol. [5 marks]

(b) Differentiate between simplex, half-duplex and full-duplex communication, giving one example of each. [6 marks]

(c) Explain the difference between analog signals and digital signals. State two measures used to describe data transmission rate or bandwidth. [5 marks]

QUESTION 9: Data Transmission Media

Study the transmission-media illustrations below.



(a) Identify media A, B and C. [3 marks]

(b) For each medium, state one advantage and one limitation in a computer network. [6 marks]

(c) A computer laboratory experiences frequent network interruptions. Give four possible causes related to transmission media and suggest a remedy for each. [4 marks]

QUESTION 10: Computer Network Elements

(a) Explain the functions of any five of the following: router, switch, modem, network interface card (NIC), repeater, bridge, gateway and wireless access point. [10 marks]

(b) Distinguish between network hardware and network software, giving two examples of each. [4 marks]

(c) State four factors to consider when selecting a network for a school, including performance, security, reliability, compatibility, scalability or cost. [4 marks]

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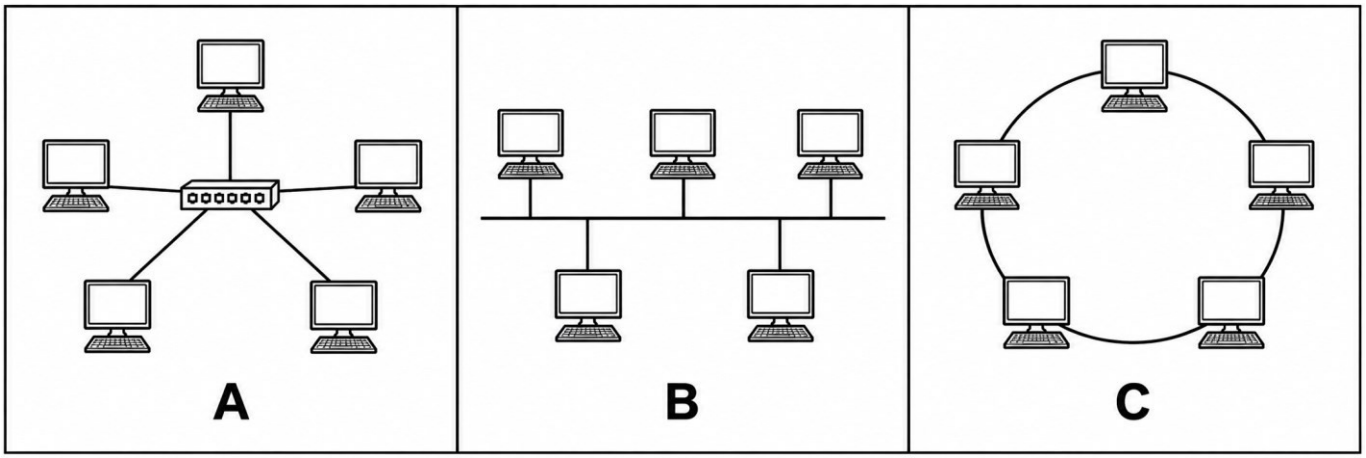
QUESTION 11: Network Topologies

Study the network diagrams below.



(a) Name the topology shown in each diagram A, B and C. [3 marks]

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(b) Compare any two of the topologies in terms of cost, ease of troubleshooting and what may happen if a main connection fails. [6 marks]

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(c) Recommend a topology for a small school office and justify your choice with two reasons. [3 marks]

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SECTION C: SOFTWARE DEVELOPMENT

QUESTION 12: Computer Programming Concepts

(a) Define a programming language and distinguish between low-level and high-level languages. [4 marks]

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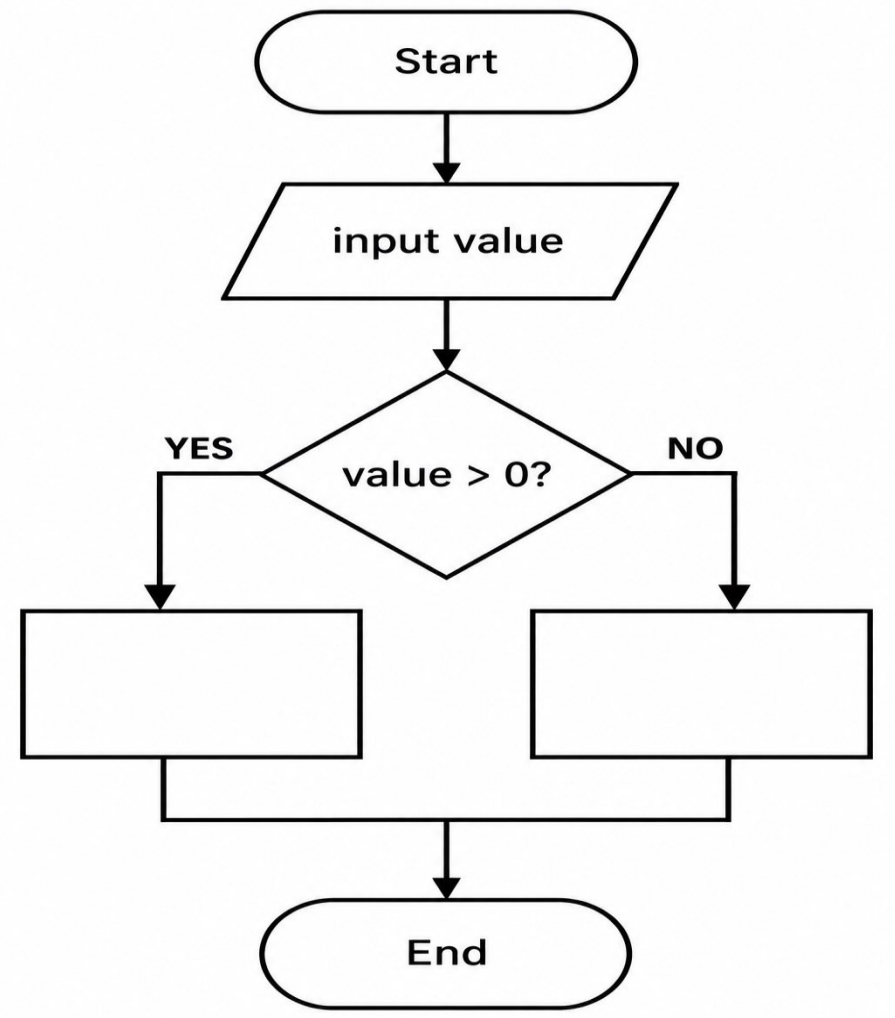
(b) Describe the main stages in the evolution of programming languages, from machine language to modern high-level languages. [6 marks]

(c) Differentiate among procedural, object-oriented, functional, logic and event-driven programming paradigms. [5 marks]

QUESTION 13: Program Development and Algorithms

Study the flowchart below, which represents a simple decision process.



(a) Explain the purpose of the decision symbol and the arrows in a flowchart. [3 marks]

(b) Complete the two process boxes with suitable output actions for positive and non-positive values. [4 marks]

(c) Write pseudocode for an algorithm that accepts a learner's mark and displays 'Pass' if the mark is at least 50, otherwise displays 'Try again'. [6 marks]

(d) Explain two ways an algorithm can help solve a real-life problem before a program is written. [4 marks]

QUESTION 14: Identifiers, Variables, Constants and Operators

(a) State four rules for choosing valid identifiers in a programming language. [4 marks]

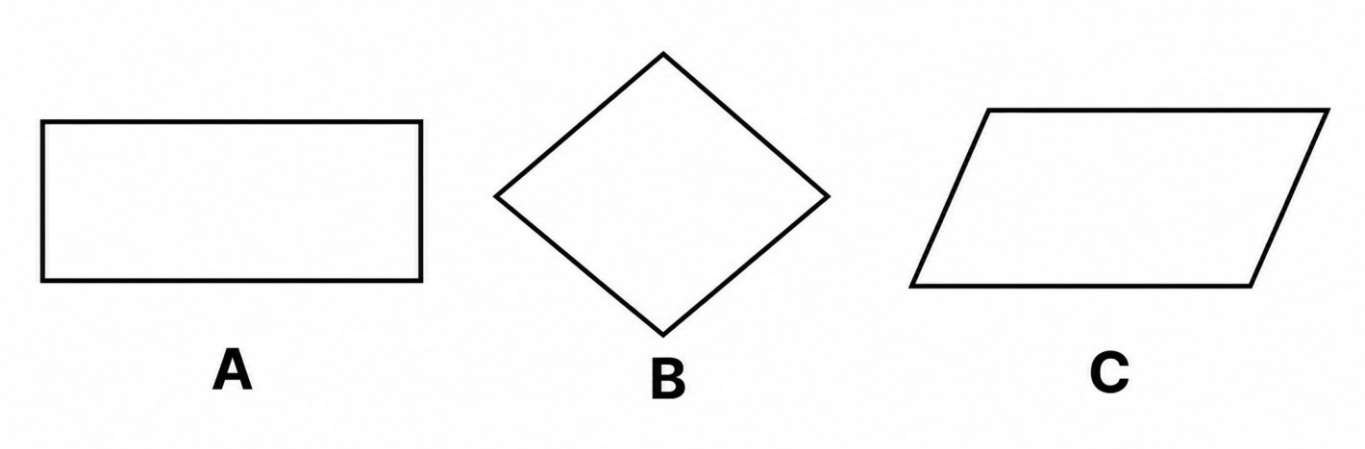
(b) Differentiate between a variable and a constant, giving one example of each. [4 marks]

(c) Classify the following operators: +, >=, AND, =, ++. Explain the purpose of each in a suitable programming context. [5 marks]

(d) Evaluate the expression $8 + 3 \times 2 >= 14$ AND $5 \neq 0$, showing the order in which the operations are performed. [4 marks]

QUESTION 15: Control Structures

Study the flowchart symbols below.



(a) Identify the purpose of symbols A, B and C. [3 marks]

(b) Explain the difference between sequence, selection and iteration in a program. [6 marks]

(c) Write pseudocode that asks for a number from 1 to 10 and keeps asking while the number is outside that range. [6 marks]

(d) A traffic-light program should display 'STOP' for red, 'WAIT' for amber and 'GO' for green. Write pseudocode using an appropriate selection structure. [6 marks]

QUESTION 16: Data Structures

(a) Define a data structure and describe the purpose of an array, list, dictionary, set, tuple and abstract data type. [6 marks]

(b) Show how you would represent the names of five learners in a one-dimensional array, using suitable index positions. [4 marks]

(c) Write a short pseudocode procedure to find and display the largest value in a list of five numbers. [6 marks]

QUESTION 17: Functions and Modular Programming

(a) Explain what is meant by modular programming and give two benefits of dividing a program into functions. [4 marks]

(b) Distinguish between a built-in function and a user-defined function, giving one example of each. [4 marks]

(c) Explain the meaning of function name, parameter list, return type and function body. [4 marks]

(d) Write pseudocode for a function named calculateArea that accepts length and width and returns the area of a rectangle. Show one example of calling the function. [6 marks]

QUESTION 18: Integrated Problem-Solving Task

A school wants a simple program to record learner marks, calculate an average, assign a performance category and display a report.

(a) Identify the inputs, processing steps and outputs required by the program. [6 marks]

(b) Write a clear algorithm or pseudocode that accepts three marks, calculates their average and displays the average. [8 marks]

(c) Extend your algorithm so that it displays 'Excellent' for an average of 80 or above, 'Good' for 60–79, 'Satisfactory' for 50–59 and 'Needs support' below 50. [8 marks]

(d) Describe two test cases you would use to check the program, including the input values and expected outputs. [4 marks]

(e) Explain how using functions and suitable data structures could make the program easier to test, maintain and improve. [4 marks]

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QUESTION 19: Practical Reflection and Responsible Digital Use

(a) Describe one practical computer task you carried out or simulated during the holiday and list the steps you followed. [4 marks]

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(b) Explain three responsible practices that protect devices, stored data or other users when working with computers and networks. [3 marks]

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(c) Identify one computer-related problem in your school or community and outline a simple, ethical digital solution to it. [4 marks]

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