LITTORAL SUBJECTS ASSOCIATION MOCK EXAMINATIONS

595 COMPUTER SCIENCE MARKING GUIDE – 2026 SESSION

PAPER 1

Qn	Ans	Qn	Ans	Qn	Ans	Qn	Ans	Qn	Ans
1	B	**11**	B	**21**	A	**31**	A	**41**	D
2	A	**12**	D	**22**	A	**32**	C	**42**	A
3	D	**13**	B	**23**	A	**33**	A	**43**	C
4	C	**14**	D	**24**	B	**34**	C	**44**	C
5	B	**15**	C	**25**	B	**35**	D	**45**	B
6	B	**16**	C	**26**	C	**36**	B	**46**	B
7	C	**17**	A	**27**	D	**37**	B	**47**	D
8	A	**18**	B	**28**	B	**38**	C	**48**	C
9	C	**19**	A	**29**	B	**39**	D	**49**	D
10	D	**20**	B	**30**	D	**40**	A	**50**	B

0595 COMPUTER SCIENCE PAPER 2 (MARCH 2026) MARKING GUIDE

GENERAL INSTRUCTIONS FOR THE TEACHER:

- This paper consists of seven questions. Candidates must answer any **FIVE**.
- Each question is graded out of **20 marks**.
- Award marks for correct steps in calculations, even if the final answer is wrong.

QUESTION 1: HARDWARE & LOGIC CIRCUITS (20 Marks)

1(a)(i) Selection and Justification (3 marks):

- **Selection:** Non-impact printer.
- **Justification:** Based on the text, the principal was advised that print quality and ink consumption are more important than initial cost. Non-impact printers (like Laser or Inkjet) offer superior print quality and better ink/toner efficiency for report cards.

1(a)(ii) Definitions (8 marks):

- **Hardcopy:** A physical, permanent version of a document usually printed on paper.
- **Impact printer:** A printer that creates images by striking an inked ribbon against the paper (e.g., Dot Matrix).
- **Non-Impact printer:** A printer that creates images without physical contact between the print head and the paper (e.g., Laser or Inkjet).
- **Print quality:** The clarity, resolution, and sharpness of the output produced by a printer.

1(b)(i) Logic Expressions (3 marks):

- **P** = X OR Y (or X + Y).
- **B** = X AND Y (or X.Y).
- **R** = NOT (P AND B) (or NAND gate output).

1(b)(ii) Truth Table Completion (3 marks): *(Note: Based on Fig 1, R is a NAND gate combining P and B)*

- Row 1 (X=0, Y=0): P=0, B=0, **R=1**
- Row 2 (X=0, Y=1): P=1, B=0, **R=1**
- Row 3 (X=1, Y=0): P=1, B=0, **R=1**
- Row 4 (X=1, Y=1): P=1, B=1, **R=0**

1(c) Storage Calculation (3 marks):

- DVD Capacity = 10.0 GB = 10,000 MB (Approximating 1GB = 1000MB for O-Level).

- Calculation: 10,000 MB / 700 MB = 14.28.
- **Answer:** 15 CDs are required to store the full content.

QUESTION 2: GENERATIONS, INTERFACES & OS (20 Marks)

2(a)(i) Computer Generation (2 marks):

- A stage or phase of technological development in computer history characterized by a specific core electronic component.

2(a)(ii) Technology Table (4 marks):

- **1st Gen:** Technology = Vacuum Tubes; Input = Punched Cards; Output = Punched Cards/Paper.
- **4th Gen:** Technology = Microprocessors (VLSI); Input = Keyboard/Mouse; Output = Monitor.

2(b)(i) User Interface (2 marks):

- The hardware and software mechanism through which a human interacts with a computer system.

2(b)(ii) Interface Descriptions (6 marks):

- **GUI (Graphical User Interface):** Uses icons, windows, and menus. Hardware: Mouse.
- **CLI (Command Line Interface):** User types text commands. Hardware: Keyboard.
- **Voice Recognition:** User speaks commands. Hardware: Microphone.

2(c) Differentiations (6 marks):

- **Multi-programming:** One CPU running multiple programs by switching between them.
- **Multi-processing:** Multiple CPUs working together to execute tasks.
- **Batch processing:** Data is collected over time and processed in one go (e.g., payroll).
- **Real-time:** Data is processed immediately as it is received (e.g., flight booking).

QUESTION 3: NETWORKS & BINARY (20 Marks)

3(a) Branch Connection (5 marks):

- **(i) Term:** WAN (Wide Area Network).
- **(ii) Advantages:** Fast data sharing between branches, reduced travel costs for meetings.
- **(iii) Intranet:** A private network based on internet technology accessible only to members of that specific organization.

3(b) Transmission Modes (8 marks):

- **Analog:** Continuous electrical signals (wave-like).
- **Digital:** Discrete pulses (0s and 1s).
- **Serial:** Data sent bit-by-bit over one wire.
- **Parallel:** Multiple bits sent simultaneously over multiple wires.

3(c) Binary Arithmetic (4 marks):

- i. 1100101 - 1010 = 1011011.
- ii. 1101011 + 1101 = 1111000.

3(d)(i) Channels (4 marks):

- **Physical:** Uses cables (e.g., Fiber optic).
- **Wireless:** Uses waves (e.g., Satellite/Wi-Fi).

3(d)(ii) Social Media Disadvantages (3 marks):

- Distraction from studies, cyberbullying, and exposure to misinformation.

QUESTION 4: PROJECT MANAGEMENT (20 Marks)

4(a) Terms (8 marks):

- **Project:** A temporary endeavor with a specific start and end date to achieve a goal.
- **Milestone:** A significant stage or event in a project timeline.
- **Critical Path:** The sequence of tasks that takes the longest time and determines the project finish date.
- **Successor Task:** A task that can only start after its preceding task is finished.

4(b) Laboratory Installation (12 marks):

- **(i) Gantt Chart (6 marks):** The teacher should verify that bars represent durations (e.g., Task 5 is 3 days long) and start after predecessors (e.g., Task 2 must end before Task 5 starts).
- **(ii) Critical Path (2 marks):** Path with longest duration (Task 2 -> 5 -> 8).
- **(iii) Completion Date (2 marks):** Sum of durations on the critical path (1 + 1 + 3 + 1 = 6 days).
- **(iv) Slack Time Task 6 (2 marks):** Task 6 takes 1 day, while the longest concurrent path takes 3 days. Slack = 2 days.

QUESTION 5: DATA COMMUNICATION (20 Marks)

5(a)(i) Data Communication (2 marks):

- The exchange of data between two nodes (devices) via a transmission medium.

5(a)(ii) Components (8 marks):

- **Sender:** Device that originates data.
- **Receiver:** Device that receives data.
- **Medium:** The path over which data travels.
- **Protocol:** Set of rules governing data exchange.

5(b) Topology (5 marks):

- **(i) Most Suitable:** Mesh Topology.
- **(ii) Advantage:** High reliability (if one link fails, data finds another). Disadvantage: High cost of cabling.

5(c) Binary Arithmetic (5 marks):

- i. 1101011 + 10111 = 10000010.
- ii. 101100 - 111 = 100101.

QUESTION 6: ALGORITHMS & SECURITY (20 Marks)

6(a)(i) Constructs (4 marks):

- **Sequence:** Steps 1, 2, 3.
- **Selection (Decision):** Step 4 (If radius < 1).
- **Iteration (Looping):** Step 4.2 (Go to step 3).

6(a)(ii) Trace Table (4 marks):

- **Input 3:** Area = 3.14 * 3 * 3 = 28.26. Output: 28.26.
- **Input -3:** Radius < 1 is True. Output: "radius cannot be less than 1". Loops back to input.

6(a)(iii) Purpose (2 marks):

- To calculate and display the area of a circle, ensuring the radius provided is valid (1 or greater).

6(a)(iv) Flowchart (5 marks):

- (Teacher should check for: Start/Stop ovals, Input/Output parallelograms, Decision diamonds, and Process rectangles).

6(b) Security (5 marks):

- **(i) Computer Security:** The protection of computer systems and information from damage, theft, or unauthorized access.
- **(ii) Consequences (3 marks):** Data loss, financial loss, legal penalties, and loss of reputation.

QUESTION 7: PROGRAMMING & TRANSLATORS (20 Marks)

7(a)(i) Programming Paradigm (2 marks):

- A fundamental style or approach to computer programming (e.g., Object-Oriented or Procedural).

7(a)(ii) Paradigms (6 marks):

- **Procedural:** Based on a series of step-by-step instructions (e.g., C).
- **Object-Oriented (OOP):** Based on "objects" which contain data and code (e.g., Java).
- **Functional:** Treats computation as the evaluation of mathematical functions.

7(a)(iii) Error Differentiation (4 marks):

- **Syntax Error:** Breaking the rules of the language (e.g., missing a semicolon). Prevents compilation.
- **Runtime Error:** Error occurring while the program is running (e.g., division by zero).

7(b) Translators (8 marks):

- **Language Translator:** Software that converts source code into machine code.
- **Compiler:** Translates the entire program at once.
- **Assembler:** Translates assembly language into machine code.
- **Interpreter:** Translates and executes the program line-by-line.