

GRADE 10 END TERM 3 2026 — COMPUTER STUDIES

MARKING SCHEME & TEACHER'S GUIDE — 100 MARKS

Award equivalent technically correct responses. Alternative valid wording and examples should be accepted.

1 Any two: vacuum tubes → transistors; transistors → integrated circuits; ICs → microprocessors; increasing miniaturisation; increased speed/reliability; reduced size/power consumption. 1 mark each. **[2 marks]**

2 Any two valid unit-role pairs: CU—coordinates/controls processing; ALU—arithmetic/logic operations; registers—temporary high-speed storage; memory—stores data/instructions. 1 mark each. **[2 marks]**

3 Input example + output example + valid selection criterion such as speed, accuracy, compatibility, cost, reliability or suitability. 1 mark each. **[2 marks]**

4 Primary storage is directly/temporarily used by the CPU, e.g. RAM/ROM; secondary storage provides longer-term storage, e.g. HDD/SSD/flash. 1 mark each distinction/example pair. **[2 marks]**

5 Any two: processing speed, clock speed, cores, architecture, cache, power consumption, compatibility, intended workload. 1 mark each. **[2 marks]**

6 Any two: memory management, file management, process management, I/O management, resource management, user/interface management, error handling. 1 mark each. **[2 marks]**

7 Any two valid safety precautions. 1 mark each. **[2 marks]**

8 Analogue data varies continuously; digital data is represented discretely, commonly using binary values. 1 mark each. **[2 marks]**

9 Any two: nodes/computers, transmission media, switch/router/access point, network software, protocols. 1 mark each. **[2 marks]**

10 Any two: use permitted characters; avoid spaces where prohibited; avoid reserved words; begin as required by the language; use meaningful names; follow consistent naming. 1 mark each. **[2 marks]**

11(a) Two technological developments, each linked to an effect on performance/capability. Examples include vacuum tubes→transistors, transistors→ICs, ICs→microprocessors, with effects such as reduced size, increased speed, improved reliability or reduced power use. 2 marks each. **[4 marks]**

11(b) Fetch—obtain instruction from memory (1); decode—interpret instruction (1); execute—carry out instruction (1); CU coordinates/issues control signals (1). **[4 marks]**

12(a) Two explained selection factors: suitability, compatibility, accuracy, speed, cost, reliability, accessibility, maintenance, environment, etc. 2 marks each. **[4 marks]**

12(b) One suitable primary storage choice with reason (2); two suitable secondary media with reasons (2). Accept RAM/ROM where appropriately justified and HDD/SSD/flash/optical/remote storage where appropriate. **[4 marks]**

13(a) Two OS functions explained. 1 mark each. **[2 marks]**

13(b) Two CPU elements with roles, e.g. CU, ALU, registers, buses. 2 marks each. **[4 marks]**

13(c) Two valid setup/cable/port safety precautions. 1 mark each. **[2 marks]**

14(a) Sender—source (1); message—information/data sent (1); medium—channel/path (1); receiver—destination (1). **[4 marks]**

14(b) Simplex is one-way communication (1); full-duplex allows simultaneous two-way communication (1). One valid example/distinction (1). **[2 marks]**

14(c) Any two: twisted-pair, coaxial cable, fibre-optic cable, radio/wireless, microwave, satellite. 1 mark each. **[2 marks]**

15(a) Star topology. 2 marks. **[2 marks]**

15(b) Any two explained: easy fault isolation; easy addition/removal of nodes; failure of one link normally does not affect others; central management; good performance. 2 marks each. **[4 marks]**

15(c) Any two: switch, router, access point, NIC, cable/transmission medium, modem, repeater. 1 mark each. **[2 marks]**

16(a) Problem definition/analysis (1); design/algorithm (1); coding/implementation (1); testing/debugging/maintenance (1). Equivalent correct sequence accepted. **[4 marks]**

16(b) Input colour (1); appropriate decision/selection logic (2); correct outputs for RED/YELLOW/GREEN (1). Equivalent pseudocode accepted. **[4 marks]**

16(c) Any valid reason such as providing a step-by-step solution, guiding coding, improving clarity or supporting testing/debugging. 2 marks. **[2 marks]**

17(a) Identifier—name used to identify a program element (1); variable—named storage whose value can change (1); constant—named value intended not to change (1). **[3 marks]**

17(b) Three operator categories with valid examples and explanation, e.g. arithmetic (+), assignment (=), relational (>), logical (AND), increment/decrement (++/--). 1 mark each. **[3 marks]**

17(c) Accept two numbers (1); perform addition (1); display result (1). **[2 marks]**

17(d) Selection tests a condition/user choice and executes the appropriate branch; valid if/else or switch/case example. 2 marks. **[2 marks]**

18(a) List/array—ordered collection usually accessed by index (2); dictionary—collection of key-value pairs accessed using keys (2). **[4 marks]**

18(b) Correct declaration/initialisation of three names (1); correct access/use of an element (2). **[3 marks]**

18(c) Any three: organise data, simplify processing, improve efficiency, enable searching/accessing/updating, support complex programs, improve maintainability. 1 mark each. **[3 marks]**

19(a) Function—named reusable block/module performing a defined task (2); two benefits such as reuse, reduced repetition, modularity, easier testing/debugging or maintenance (1 each). **[4 marks]**

19(b) Parameter—placeholder/variable in function definition (1); argument—actual value supplied in function call (1). **[2 marks]**

19(c) Function named calculate_area with length and width parameters (1); area=length×width (1); return statement (1); correct call passing arguments (1). **[4 marks]**

CURRICULUM TRACEABILITY

Question	Strand / Sub-strand	Cognitive Level	Marks
1	1.1 Evolution and Development of Computers	Understand	2
2	1.2 Computer Organisation and Architecture	Understand	2
3	1.3 Input/Output (I/O) Devices	Understand/Apply	2
4	1.4 Computer Storage	Understand	2
5	1.5 Central Processing Unit (CPU)	Understand	2
6	1.6 Operating System (OS)	Understand	2
7	1.7 Computer Setup	Apply	2
8	2.1 Data Communication	Understand	2
9	2.3 Computer Network Elements	Remember	2
10	3.3 Identifiers and Operators	Understand	2
11	1.1 + 1.2	Understand/Analyse	8
12	1.3 + 1.4	Apply/Analyse	8
13	1.5 + 1.6 + 1.7	Apply	8
14	2.1 + 2.2 Data Transmission Media	Understand/Analyse	8
15	2.3 + 2.4 Network Topologies	Apply/Analyse	8
16	3.1 Computer Programming Concepts + 3.2 Program Development Overview + 3.4 Control Structures	Apply/Analyse	10
17	3.3 Identifiers and Operators + 3.4 Control Structures	Apply	10
18	3.5 Data Structures	Understand/Apply	10
19	3.6 Functions	Understand/Create	10

Coverage verification: All 17 Grade 10 sub-strands are represented: 1.1–1.7, 2.1–2.4 and 3.1–3.6. The paper is cumulative across the complete supplied Grade 10 Computer Studies Curriculum Design.

Diagram/visual assessment: CPU architecture, communication model, star topology and flowchart stimuli are integrated into curriculum-valid questions.