



★ STANDALONE COMPREHENSIVE ASSESSMENT COMPENDIUM ★

The Grand Assessment & Question Bank

Computer Science & Artificial Intelligence — Grade 10 (First Term)

Exclusively Multiple Choice Questions (MCQs) & Free-Response Analytical Scenarios across all 13 Units.

Coupled with the Definitive Model Answers Guide & Step-by-Step Marking Rubrics.

◆ Assessment Structure & Quantitative Specifications

13

Full Units Covered

195

Rigorous MCQs

52

Analytical Essays

100%

Solutions & Rubrics

FRAMEWORK Pedagogical Blueprint & Ministry Examination Alignment

BLOOM'S COGNITIVE TAXONOMY

Section A: Multiple Choice Questions (MCQs)

- 15 questions per unit (195 MCQs total) across 2 dedicated sheets.
- Formatted with standardized 4 options (A, B, C, D) and dedicated answer brackets [].
- Eliminates ambiguous distractors; tests factual recall, conceptual understanding, and troubleshooting.

Section B: Free-Response & Applied Scenarios

- 4 rich essay questions per unit (52 essay problems total) on a dedicated sheet.
- Formatted with explicit point values [3 or 4 Marks] and ruled writing workspaces.
- Features code trace tables, mathematical derivations, truth tables, and engineering case studies.

Table of Specifications: Curriculum Units & Cognitive Domain Distribution

Unit	Curriculum Domain & Module Title	Textbook Ref	MCQs	Essays	Cognitive Focus
Unit 1	Knowledge Society & ICT Foundations	pp. 5-12	15 MCQs	4 Essays	Recall / Analysis
Unit 2	Digital Rights, IP Laws & Privacy Protections	pp. 13-24	15 MCQs	4 Essays	Application / Legal
Unit 3	Information Security & Social Engineering	pp. 25-40	15 MCQs	4 Essays	Math / Defense
Unit 4	Workplace Ergonomics & E-Waste Recycling	pp. 41-50	15 MCQs	4 Essays	Health / Eco-Audit
Unit 5	Telecommunications & Transmission Media	pp. 51-60	15 MCQs	4 Essays	Hardware / Physics
Unit 6	Signal Processing & Lossless RLE Compression	pp. 61-70	15 MCQs	4 Essays	Math / Algorithms
Unit 7	Computer Architecture & Digital Logic Circuits	pp. 71-80	15 MCQs	4 Essays	Logic / Circuits
Unit 8	Computer Networks & The TCP/IP Model	pp. 81-92	15 MCQs	4 Essays	Protocols / Stack
Unit 9	Relational Databases, SQL & Enterprise Systems	pp. 93-102	15 MCQs	4 Essays	SQL / Modeling
Unit 10	Data Analysis, Descriptive Statistics & Regression	pp. 103-114	15 MCQs	4 Essays	Math / Statistics
Unit 11	Modeling, Simulation & Queuing Theory	pp. 115-124	15 MCQs	4 Essays	Simulation / Math
Unit 12	Computational Thinking & Python Programming	pp. 125-136	15 MCQs	4 Essays	Python / Big-O
Unit 13	Generative AI, Web Stack & Digital Ethics	pp. 137-146	15 MCQs	4 Essays	GenAI / Web / Ethics
TOTAL	13 Comprehensive Units	146 Pages	195 MCQs	52 Essays	247 Questions

Teacher & Student Directive: All multiple-choice questions require selecting the single best answer. Essay questions require explicit mathematical formulas, step-by-step arithmetic, truth table rows, or code traces as specified in the marking rubrics located in Part II.

UNIT 1 Unit 1: Knowledge Society & ICT Foundations

Ministry Textbook pp. 5-12

Section A: Multiple Choice Questions (Part 1 · Questions 1 to 8)

U1-Q01 Which of the following describes raw, unorganized facts and symbols without context or meaning?

[]

A Data

B Information

C Knowledge

D Wisdom

U1-Q02 When the numerical value '39.5' is labeled as 'Patient Body Temperature = 39.5°C', it transforms into:

[]

A Metadata

B Information

C Unstructured Data

D Pure Observation

U1-Q03 Diagnosing an illness as a bacterial infection requiring amoxicillin based on symptoms and lab analysis represents:

[]

A Raw Data

B Information

C Knowledge

D Signal

U1-Q04 The fundamental characteristic of digital information where once published, it remains difficult to completely erase is:

[]

A Reproducibility

B Persistence

C Propagation

D Exclusivity

U1-Q05 The ability to generate millions of identical copies of a digital file at near-zero marginal cost refers to:

[]

A Persistence

B Reproducibility

C Scalability

D Propagation

U1-Q06 The characteristic enabling a breaking news event to be transmitted globally across networks within seconds is:

[]

A Propagation

B Reproducibility

C Persistence

D Tangibility

U1-Q07 Information obtained directly through firsthand scientific laboratory experiments or sensor telemetry is classified as:

[]

A Primary Information

B Secondary Information

C Tertiary Data

D Derivative Work

U1-Q08 A news article summarizing a recently published climate change research paper is an example of:

[]

A Primary Information

B Secondary Information

C Raw Telemetry

D Unprocessed Fact

UNIT 1 Unit 1: Knowledge Society & ICT Foundations

Ministry Textbook pp. 5-12

Section A: Multiple Choice Questions (Part 2 · Questions 9 to 15)

U1-Q09 The mandatory process of validating secondary information against multiple independent, authoritative sources is called:

[]

A Data Scraping

B Cross-checking

C Deduplication

D Benchmarking

U1-Q10 In the historical evolution of human societies, 'Society 4.0' is formally designated as the:

[]

A Agricultural Society

B Industrial Society

C Information Society

D Super-Smart Society (Society 5.0)

U1-Q11 Which cloud computing deployment model is strictly dedicated to a single organization with high compliance requirements?

[]

A Public Cloud

B Private Cloud

C Community Cloud

D Open Mesh Cloud

U1-Q12 Which cloud service model provides virtualized hardware, storage, and networking for full OS installation?

[]

A SaaS (Software as a Service)

B PaaS (Platform as a Service)

C IaaS (Infrastructure as a Service)

D FaaS (Function as a Service)

U1-Q13 The massive, exponential increase in global digital data volume surpassing human processing capability is known as:

[]

A Information Explosion

B Signal Latency

C Thermal Throttling

D Bandwidth Choke

U1-Q14 The disparity between social groups regarding access to modern information technologies and internet connectivity is the:

[]

A Digital Footprint

B Digital Divide

C Silicon Ceiling

D Network Protocol Gap

U1-Q15 Unlike physical goods, which statement uniquely characterizes digital information?

[]

A It depreciates through physical friction

B It can be shared without depriving the owner of possession

C It is limited by geographical boundaries

D It cannot be stored on magnetic media

⚠ High-Yield Ministry Exam Strategy & Critical Distinction

Exam Trap: Do not confuse 'Information' with 'Knowledge'. Information is data placed into meaningful context; Knowledge is the actionable synthesis of information and experience used to solve problems.

APPLIED Unit 1: Knowledge Society & ICT Foundations — Essay Scenarios

STRUCTURED PROBLEMS

Section B: Free-Response Analytical & Applied Problems (4 Problems)

U1-E01 • Free-Response Problem

4 Marks

Distinguish rigorously between 'Primary Information' and 'Secondary Information'. Provide a concrete medical hospital scenario illustrating both, and explain why cross-checking is imperative before administering clinical treatment.

STUDENT WORKSPACE & STRUCTURED RESPONSE

U1-E02 • Free-Response Problem

4 Marks

Analyze how the three fundamental characteristics of digital information (Persistence, Reproducibility, Propagation) interact when an unauthorized confidential document is leaked onto the public Internet.

STUDENT WORKSPACE & STRUCTURED RESPONSE

U1-E03 • Free-Response Problem

3 Marks

Define the concept of the 'DIKW Hierarchy' (Data, Information, Knowledge, Wisdom). Formulate an environmental monitoring example tracking river pollution to trace data transforming into knowledge.

STUDENT WORKSPACE & STRUCTURED RESPONSE

U1-E04 • Free-Response Problem

4 Marks

A commercial banking enterprise must decide between deploying its core customer banking ledger on a 'Public Cloud' or a 'Private Cloud'. Compare both architectures across Security/Compliance, Capital Cost, and Scalability.

STUDENT WORKSPACE & STRUCTURED RESPONSE