



FINAL EXAMINATION

**BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN COMPUTER
APPLICATION DEVELOPMENT
BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN
CYBERSECURITY**

COURSE : PLATFORM TECHNOLOGIES

COURSE CODE : ARC2203

DURATION : 3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. This question paper consists of **THREE (3)** questions.
2. Answer ALL questions in the Answer Booklet provided.
3. Please check to make sure that this examination pack consists of:
 - i. The Question Paper
 - ii. An Answer Booklet
4. Do not bring any material into the examination hall. Electronic calculators are allowed.
5. Please write your answer using permanent ink.

MYKAD/ PASSPORT NO. : _____
ID. NO. : _____
LECTURER : _____
SECTION : _____

DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO

This question paper consists of 3 printed pages including the front page

Answer ALL questions.

QUESTION 1

Given that an agency wants to encourage its employees to apply password managers, it is concerned about possible threats such as primary password misuse and one source of failure.

- a. Compare **FIVE (5)** positive effects and risks of setting up password management against remembering passwords by memory.

(10 marks)

- b. Implement **THREE (3)** plans for company-wide KeePass setup that includes backup plans and training also explain **TWO (2)** methods on how you react if a worker forgot their master password?

(10 marks)

(Total: 20 marks)

QUESTION 2

High-performance workstations with fast storage, high-end GPUs, and multi-core CPUs are used by video production companies. During rendering, these devices frequently overheat, which causes throttling and poor performance.

- a. Apply **TWO (2)** which parts are probably responsible for most of the power used in heat production and calculate the power consumption if CPU=150W, GPU=350W, RAM=20W, motherboard=100W and storage=10W. Then, add a 25% safety margin and discover a suitable 80 PLUS PSU rating.

(15 marks)

- b. Identify a suitable cooling system (air/liquid) for these workstations with **THREE (3)** criteria and explain **THREE (3)** methods on how you would enhance heat dissipation using the heatsink heat transfer equation $Q=h \cdot A \cdot \Delta T$ as the example.

(15 marks)

- c. Discover **TWO (2)** firmware and software improvements (such as power states and driver upgrades) and give **THREE (3)** recommendations for workload allocation techniques to avoid extended periods of peak performance.

(10 marks)

(Total: 40 Marks)

QUESTION 3

For 4K video editing, a video production business need to construct a high-performance workstation. Large video files, real-time rendering and quick data retrieval are all requirements for the system.

- a. Illustrate the architecture of workstations that include the major parts (CPU, GPU, RAM and storage) and explain how they are connected.
(15 marks)
- b. Explain **THREE (3)** roles of memory hierarchy in ensuing fast data access and justify **THREE (3)** storage technologies. Discover a suitable storage technology for the scenario above.
(15 marks)
- c. Discuss **THREE (3)** recommendations for improving cache and RAM to speed up rendering and describe **TWO (2)** on how the concept balances speed, capacity and cost relate to the scenario.
(10 marks)

(Total: 40 Marks)
(TOTAL: 100 MARKS)

END OF QUESTION PAPER

