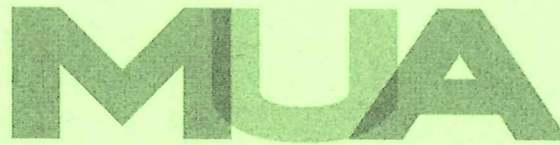


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CERTIFICATE UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

CERTIFICATE IN INFORMATION COMMUNICATION  
TECHNOLOGY/CERTIFICATE IN BUSINESS INFORMATION  
COMMUNICATION TECHNOLOGY

CIT 100/CBT 100: CONCEPTS OF COMPUTER OPERATING SYSTEMS

DATE: 1<sup>ST</sup> APRIL 2025

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. DO NOT write on this question paper.
3. This paper contains SIX (6) questions.
4. Question ONE is compulsory.
5. Answer any other FOUR questions.
6. Question ONE carries 30 MARKS and the rest carry 10 MARKS each.
7. Write all your answers in the Examination answer booklet provided.

**QUESTION ONE**

Read the Case Study below carefully and answer the questions that follow:

The modern-day computer has become an important part of our daily life. Nowadays, they use the computer in every office whether private or government. The simple computer basically consists of components and parts that can be attached to it, different components of a computer can become obsolete very quickly. Early software was written for specific computers and sold with the hardware it ran on and Functional requirements identify what the software should do and the future of software development and applications will be a continuation of current trends.

An operating system (OS) is an essential software that manages a computer. Operating system is a software that provides the means for proper use of resources no any application software or hardware can be utilized if a computer is not installed with an operating system. Operating systems are very important to be able to run different applications. There are many common operating systems used in the world today. The importance of hardware can hardly be underestimated because it ensures that every process is completed successfully.

One of the fundamental and core functions of computers is data storage. The computer has components that retain digital data and record media used for computation. Computers use several memory types organized in a storage hierarchy.

**Required:**

- a) Discuss FOUR components of a computer [8 MARKS]
- b) Discuss the relationship between operating systems and computer hardware by use of examples [8 MARKS]
- c) Discuss any THREE functions of an operating system. [6 MARKS]
- d) Evaluate THREE types of memory in a computer [6 MARKS]
- e) List TWO examples of operating systems [2 MARKS]

**QUESTION TWO**

- a) Define the term BIOS [2 MARKS]
- b) Explain the difference between a process and a thread. [4 MARKS]
- c) Assess the primary differences between Network Operating System and Distributed Operating System [4 MARKS]

**QUESTION THREE**

- a) Discuss the primary purpose of an operating system in a computer [2 MARKS]
- b) Explain any three elements and information stored in the Process Control Block [6 MARKS]
- c) Define the term deadlock [2 MARKS]

**QUESTION FOUR**

- a) Evaluate THREE ways on how to protect a computer from malware [6 MARKS]
- d) State TWO characteristics of a good process scheduler [4 MARKS]

**QUESTION FIVE**

- a) Explain the concept of virtual memory [2 MARKS]
- b) Describe the difference between preemptive and non-preemptive scheduling [4 MARKS]
- c) Define the following terms:
  - i. Software [2 MARKS]
  - ii. Hardware [2 MARKS]

**QUESTION SIX**

- a) Assess the four necessary conditions for deadlock [6 MARKS]
- b) Evaluate two memory management techniques [4 MARKS]

