MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

TVET EXAMINATION

2023/2024 ACADEMIC YEAR

FIRST YEAR **SECOND** SEMESTER EXAMINATION FOR DIPLOMA IN HOSPITALITY MANAGEMENT

ICT/OS/CS/CR/02/6/A – UNDERSTAND OPERATING SYSTEMS

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Mobile phones are not allowed in the examination room.
2. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (40 MARKS)

a) Define computer software and explain its relevance to operating system. (4 marks)
b) What is the primary function of the operating system? (2 marks)
c) List and briefly explain three structures of operating systems. (3 marks)
d) Differentiate between batch processing and real – time operating systems. (4 marks)
e) Outline the installation requirements for windows operating system. (4 marks)
f) Briefly describe the process of window as installation. (4 marks)
g) Define process management in the context of operating systems. (2 marks)
h) What does process scheduling involve? (2 marks)
i) Explain the significance of the task manager in process of management. (3 marks)
j) What is the purpose of performance monitor tool in process management? (3 marks)
k) Define memory management and its purpose or importance in operating system.
   (2 marks)
l) Provide two examples of memory management techniques. 2 marks)
m) Explain the concept of virtual memory management. (2 marks)
n) How can virtual memory setting be adjusted in an operating system? (3 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) What do you understand by the term computer software? (3 marks)
b) What is the relevance of computer software to operating systems? (2 marks)
c) Explain how computer software interact with hardware. (5 marks)
d) Discuss the role of the operating system in managing the interaction of computer software and the hardware. (5 marks)
e) A computer can work without an operating system installed in it by directly interacting with the hardware at a low level. Such would greatly reduce it usability and functionality. Discuss the role of operating system in relation to usability and functionality. (5 marks)

QUESTION THREE (20 MARKS)

a) Discuss the primary function of an operating system. (5 marks)
b) Explain how the operating system facilitate resource management and provide an interface between users and computer hardware. (10 marks)
c) Discuss various process scheduling algorithms such as the FCFS, SJN, RR, etc.
   (5 marks)

QUESTION FOUR (20 MARKS)

a) Define memory management and explain its importance in operating systems. (2 marks)
b) Discuss common memory management technique and outline advantages and disadvantages of each of the technique. (8 marks)
c) Explain how the operating systems allocates and manages memory resource efficiency considering factors such as fragmentation and memory hierarchy. (10 marks)

SECTION C – ANSWER ANY ONE QUESTION IN THIS SECTION

QUESTION FIVE (20 MARKS)

a) Explain the role of operating system in managing computer hardware resources.

(5 marks)

b) Discuss how the operating system interacts with hardware components such as the CPU, memory and storage devices. (10 marks)

c) What is the significance of the interaction of the operating system and hardware components in resource management? (5 marks)

QUESTION SIX (20 MARKS)

a) Discuss the concept of process management in operating systems. (5 marks)

b) Define process status and transitions and explain how processes are managed by the operating system. (8 marks)

c) Discuss the role of process scheduling algorithm in determining the order of execution for multiple processes. (7 marks)