GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS

JANUARY – APRIL 2026 SEMESTER

BACHELOR OF COMPUTER SCIENCE

COURSE CODE: BSCS 102

COURSE TITLE: PRINCIPLES OF OPERATING SYSTEM

DATE: 09 APRIL 2026 **TIME: 2 HOURS**

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY.**
2. SECTION B: ANSWER ANY OTHER **TWO** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

Question One

a) Define an operating system and explain its main functions. **[6 Marks]**

b) Describe the difference between process and thread. **[6 Marks]**

c) Explain the concept of virtual memory. **[6 Marks]**

d) List and explain any two CPU scheduling algorithms. **[6 Marks]**

e) What is a deadlock? Describe one method to handle deadlocks. **[6 Marks]**

SECTION B: ANSWER ANY TWO QUESTIONS

Question Two

a) Discuss the role of file systems in an operating system. **[5 Marks]**

b) Explain the differences between preemptive and non-preemptive scheduling. **[5 Marks]**

c) Describe the structure and purpose of system calls. **[5 Marks]**

d) Analyze the advantages and disadvantages of multiprogramming. **[5 Marks]**

Question three

a) Explain the concept of paging and segmentation. **[5 Marks]**

b) Discuss the importance of synchronization in operating systems. **[5 Marks]**

c) Describe the different types of operating systems. **[5 Marks]**

d) Evaluate the impact of interrupts on system performance. **[5 Marks]**

Question Four

a) Explain the process of context switching. **[5 Marks]**

b) Discuss memory management techniques. **[5 Marks]**

c) Describe the role of device drivers. **[5 Marks]**

d) Analyze the concept of protection and security in operating systems. **[5 Marks]**

Question five

a) Discuss the concept of file allocation methods. **[5 Marks]**

b) Explain the role of the kernel in an operating system. **[5 Marks]**

c) Describe the differences between batch and interactive systems. **[5 Marks]**

d) Evaluate the challenges of distributed operating systems. **[5 Marks]**