



## **UNIVERSITY EXAMINATIONS**

### **SECOND YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF INFORMATION SCIENCE**

**FIRST SEMESTER, 2023/2024**

**(AUGUST-DECEMBER, 2023)**

**INS 251: OPERATING SYSTEMS**

**STREAM: Y2 S1**

**TIME: 2 HOURS**

**DAY: WEDNESDAY, 9.00–11:00 AM**

**DATE: 22/11/2023**

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### **INSTRUCTIONS**

- 1) Do not write anything on this question paper.**
- 2) Answer Question ONE [Compulsory] and any other TWO Questions**

### **QUESTION ONE**

- a) List and explain five functions of Operating Systems. (10 marks)
- b) List and explain the general objectives of Process Scheduling. (10marks)
- c) State and explain five ways of handling deadlock. (10 marks)

### **QUESTION TWO**

- a) Briefly describe the following Operating Systems types. (10 marks)
  - i. Batch OS
  - ii. Time-sharing OS
  - iii. Distributed OS
  - iv. Network OS
  - v. Real-time OS
- b) Discuss the functions of OS in a resource management and utilization. (10 marks)

### **QUESTION THREE**

- a) List and explain OS components that aid its functionality and operations. (10 marks)
- b) Enumerate the difference between processes and threads. (10 marks)

### **QUESTION FOUR**

- a) Discuss the difference between real-time system and time-sharing system. (10 marks)
- b) Discuss the difference between batch processing system and real-time processing system. (10 marks)

### **QUESTION FIVE**

- a) Explain briefly the following allocation algorithms. (10 marks)
  - i. First fit
  - ii. Best fit
  - iii. Worst fit
  - iv. Buddy's system
  - v. Next fit
- b) Discuss the advantages of multi programming. (5 marks)
- c) Discuss the relationship between Operating System and Computer hardware. (5marks)