

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2023**

**OPERATING SYSTEMS**

[Maximum Marks: **100**]

[Time: **3 Hours**]

**PART-A**

[Maximum Marks: **10**]

I. (Answer *all* questions in one or two sentences. Each question carries **2** marks)

1. State system software.
2. Differentiate a program and a process.
3. Define race condition.
4. List different types of fragmentation.
5. List different file system attributes.

(5 x 2 = 10)

**PART-B**

[Maximum Marks: **30**]

II. (Answer *any five* of the following questions. Each question carries **6** marks)

1. Write short note on batch systems.
2. Explain the different states of a process with the help of state diagram.
3. Explain deadlock and its causes.
4. Discuss different address binding schemes.
5. Explain demand paging.
6. Describe the file organization concepts.
7. Explain the features of VMware.

(5 x 6 = 30)

**PART-C**

[Maximum Marks: **60**]

(Answer *one* full question from each Unit. Each full question carries **15** marks)

**UNIT – I**

- III. a. Compare multiprogramming and multiprocessing system. (8)
- b. Discuss UNIX operating systems. (7)

**OR**

- IV. a. Write short note on loader and its function. (6)
- b. Write short note on the following:-
- (i) Memory management in OS
  - (ii) Protection in OS.
  - (iii) Process management in OS. (9)

**UNIT – II**

- V. a. Describe PCB & its general structure. (7)
- b. Explain SJF & RR scheduling algorithm and their Gantt charts. (8)

**OR**

- VI. a. Explain critical section problem. (9)
- b. Discuss various scheduling criteria. (6)

**UNIT- III**

- VII. a. Explain paging and paging hardware. (9)
- b. Differentiate the logical address and physical address. (6)

**OR**

- VIII. a. Explain any two page replacement algorithm and compute its page fault rate. (10)
- b. Explain the concept of thrashing. (5)

**UNIT - IV**

- IX. a. Explain indexed file allocation methods. (7)
- b. Discuss various file operations. (8)

**OR**

- X. Write briefly about (i)Hardware virtualization (ii) Network virtualization. (15)

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