

**Bachelor of Science (B.Sc. I.T.) Semester-II (C.B.S.) Examination****OPERATING SYSTEMS****Paper—III**

Time : Three Hours]

[Maximum Marks : 50

**N.B. :—** (1) All questions are compulsory and carry equal marks.

(2) Draw neat labelled diagrams wherever necessary.

**EITHER**

1. (a) What is an operating system ? Write the characteristics of a modern operating system. 5
- (b) Define process. Write the different states of process. Explain with example. 5

**OR**

- (c) What is scheduling ? Explain RR CPU scheduling algorithm with example. 5
- (d) What is a micro kernel ? Explain its architecture and benefits. 5

**EITHER**

2. (a) What do you understand by deadlock ? What are the conditions for deadlock ? 5
- (b) Write short notes on :
  - (i) Deterministic modeling
  - (ii) Queuing analysis. 5

**OR**

- (c) Write short note on resource allocation graph. 5
- (d) Discuss methods for deadlock recovery. 5

**EITHER**

3. (a) Write short notes on :
  - (i) Compaction
  - (ii) Protection. 5
- (b) Differentiate between paging and segmentation. 5

**OR**

- (c) Explain single partition allocation method with example. 5
- (d) What is swapping ? Explain swapin and swapout process with well labelled diagram. 5

**EITHER**

4. (a) Explain I/O buffering. Why is it necessary ? What are the different types of buffers ? 5
- (b) Write a short note on RAID. 5

**OR**

- (c) Write short notes on :
  - (i) Cryptography
  - (ii) Digital signature. 5
- (d) Explain following disk scheduling algorithm :
  - (i) FCFS
  - (ii) SSTF. 5

5. Attempt all :

- (a) What is multithreading ? Write benefits of a thread. 2½
- (b) Write a note on simulators. 2½
- (c) Write advantages and disadvantages of dynamic partition memory management scheme. 2½
- (d) Explain Biometrics authentication. 2½