



- Notes :
1. All questions are compulsory.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.

1. a) Define and explain operating system. Explain various types of operating system. **8**
- b) What do you mean by process. Explain process control block in detail. **8**

OR

2. a) Discuss scheduling concept. List and explain types of scheduler with example. **8**
- b) Explain dual mode of operating system. Also explain the concept of context switching. **8**
3. a) Write a note on following Inter-process communication. **8**
 - i) Shared Memory
 - ii) Message Passing
- b) Explain Producer Consumer problem in detail. **8**

OR

4. Consider the set of 5 processes whose arrival time and burst time are given below- **16**
(Note: Lower no, represents Higher priority)

Process	Burst Time	Arrival Time	Priority
P ₁	10	0	5
P ₂	8	4	3
P ₃	2	2	1
P ₄	4	4	2
P ₅	6	2	4

Calculate the average waiting time and average turnaround time

- i) FCFS
- ii) SJF (non-pre-emption)
- iii) Round Robin (slice = 3ms)
- iv) Priority

5. a) What is deadlock? What is the necessary condition for a deadlock situation to arise. **8**
- b) Explain different methods to handle a deadlock. **8**

OR

6. a) Explain UNIX and Windows directory structure. 8
- b) Explain: 8
- i) SCAN ii) CSCAN
7. a) Explain segmentation & paging in detail. 8
- b) Explain the differences between physical address space & logical address space. 8

OR

8. a) Explain demand paging and virtual memory. 8
- b) Given the following string. 8
- 1 2 0 1 2 0 3 1 2 4 5 1
- Assume no. of frames 3. How many phase fault would occur for
- i) LRU ii) FIFO
9. a) Describe the access matrix and its implementation in operating systems. 8
- b) What are the goals of protection and why is it important in operating systems? 8

OR

10. a) Explain revocation of ACCESS RIGHTS. Also explain the questions which may arise due to revocation. 8
- b) Write a short note on: 8
- i) Trojan horse technique in security
- ii) Worm
