

**BCA Sem.-3 Examination
CC 204**

**Fundamentals of Operating Systems
December-2025**

Time : 2.30 Hours]

[Max.Marks : 70

Q.1 Answer the Questions in detail.

- (i) What is an Operating System? Explain the different types of operating system. 07
 (ii) Explain in detail: Dynamic Partitions. 07

OR

- (i) Explain in detail: Demand Paging. 07
 (ii) Consider the reference string: 0, 1, 2, 4, 3, 7, 1, 4, 2, 3 07
 With memory of 3 page frames, find the page faults using FIFO and LRU page replacement Algorithms.

Q.2 Answer the Questions in detail.

- (i) Write a short note on Process control Block with Diagram. 07
 (ii) Explain different types of Schedulers. 07

OR

- (i) What is Process? Explain different process states in detail with diagram. 07
 (ii) Given the following detail. 07

JOB NUMBER	CPU CYCLE
P1	5
P2	2
P3	6
P4	4

All the jobs arrive at same time 0. Draw a timeline for each of the following Scheduling algorithm. Also calculate average turnaround time and average waiting time.

- (a) FCFS (b) SJN (c) Round Robin [Time slice=4ms]

Q.3 Answer the Questions in detail.

- (i) What is Deadlock? Explain conditions for Deadlock. 07
 (ii) What is Starvation? Explain dining Philosophers problem in detail. 07

OR

- (i) What is Parallel Processing? Discuss: Master Slave configuration and symmetric configuration. 07
 (ii) Explain Producers and Consumers problem in detail. 07

Q.4 Answer the Questions in detail.

- (i) Given the following detail 07
 Let us assume that when the data is being retrieved from the track 20, following list of request has arrived Track: 5,30,10,40,6,15
 Explain FCFS,SSTF,SCAN Scheduling seek strategies
 (ii) Explain contiguous storage and non-contiguous storage allocation. 07

OR

- (i) Discuss: Access Control Matrix, Access control List and Capability List. 07
 (ii) Write Short notes on Data compression Technique. 07

Q.5 MCQs. Attempt any seven out of twelve.

1. The two types of semaphores are-

a) Counting and Decimal	(b) counting and binary
(c) counting and Mutex	(d) none

2. _____ memory is a storage mechanism which offers user an illusion of main memory.

(a) Virtual Memory	(b) Main Memory
(c) Read only memory	(d) Random Access Memory

3. Thread is a _____

(a) Light Weight process	(b) heavy weight process
(c) Multi process	(d) I/O Process

4. When does page fault occur?

(a) The page is present in memory	(b) the deadlock occurs
(c) The page is not present in memory	(d) The buffering occurs.

5. Banker's algorithm is used?

(a) To prevent deadlock	(b) To deadlock recovery
(c) To solve the deadlock	(d) None of these

6. Which of the following are CPU scheduling algorithms?

(a) Priority	(b) Round robin
(c) shortest job	(d) All of above

7. Why is CPU scheduling done?

(a) increases CPU Utilization	(b) Decrease cost
(c) decreases CPU Utilization	(d) none

8. Contiguous allocation method suffers internal as well as external fragmentation. [True/False]

9. Real time operating system is combination of batch and interactive system. [True/false]

10. Subdirectory is created when a user opens an account in the computer system. [True/False]

11. Long Term Scheduler is also known as job-scheduler. [True/False]

12. Write a full form of SSTF

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