SJES College of Management Studies
IV semester BCA Course NEP Scheme (Fresh)
DSC12: Operating System Concepts

Time: 3 Hours **Max Marks: 60**

Section- A

I. Answer any SIX of the following question 06 x 02 = 12 Marks

1. Mention any two functions of an operating system.
2. What is Batch processing
3. What is a Thread?
4. What is Real-Time CPU Scheduling?
5. What is aging?
6. What is Process Synchronization.
7. Define paging and segmentation.
8. What is dynamic Loading?
9. List various types of files?

Section- B

II. Answer any Four of the following question 04 x 06 = 24 Marks

10. What is an operating system? Explain types of Operating System.
11. Explain Inter process communication (IPC).
12. Explain different process states with a neat diagram.
13. Consider the following processes with their CPU burst time in milliseconds & arrival time=0.

PROCESS	CPU BURST
P1	10
P2	1
P3	2
P4	5

Draw the Gantt chart illustrating the execution of these processes using Shortest Job First (SJF). Calculate Average waiting time, Average turnaround time

14. What is Deadlock? Explain different methods of deadlock prevention?
15. Differentiate between paging and segmentation.
16. Explain the types of Directory Structure.

Section- C

III. Answer any Three of the following question 03 x 08 = 24 Marks

17.	a. Explain time sharing and real time operating system.	4
	b. Explain various services offered by an operating system.	4
18.	a. Explain different types of schedulers?	5
	b. Explain multi-level queue scheduling?	3
19.	a. Write a note on Process Synchronization	3
	b. Explain dining philosopher problem using semaphore?	5
20.	a. Explain Paging Scheme?	4
	b. Explain LRU page replacement algorithm with example?	4
21.	a Explain Various File Accessing Method?	4
	b. Explain single level and two-level directory?	4

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Section- A

IV. Answer any SIX of the following question 06 x 02 = 12 Marks

1. What is an operating system?
2. What is inter-process communication
3. What is a Thread? List its types.
4. What is pre-emptive scheduling?
5. What is Race Condition?
6. What is Semaphore. Mention its types.
7. Define logical and physical address.
8. What is dynamic Loading?
9. List various types of files?

Section- B

V. Answer any Four of the following question 04 x 06 = 24 Marks

10. Explain Process control Block (PCB).
11. Define Process? Explain different process states with a neat diagram.
12. Consider the following processes with their CPU burst time in milliseconds & arrival time=0.

PROCESS	CPU BURST
P1	10
P2	1
P3	2
P4	5

Draw the Gantt chart illustrating the execution of these processes using FCFS.

Calculate

1. Average waiting time
2. Average turnaround time

13. What is Deadlock? Explain different methods of deadlock prevention?
14. Differentiate between paging and segmentation.
15. Explain the types of Directory Structures?

Section- C

VI. Answer any Three of the following question 03 x 08 = 24 Marks

16. a. Explain time sharing and real time operating system. 4
    b. Explain various services offered by an operating system. 4

17. a. Explain different types of schedulers? 4
    b. Explain the advantages and disadvantages of Round Robin Scheduling? 4

18. a. Write a note on Threading Issues 4
    b. Explain dining philosopher problem using semaphore? 4

19. a. What is fragmentation? Explain the types of fragmentation? 4
    b. Explain various method used to allocate space to files? 4

20. a Explain any two-file structures? 4
    b. Explain various file accessing method? 4

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Computer Applications
DSC12: Operating System Concepts

Time: 3 Hours **Max Marks: 60**

Section- A

I. Answer any SIX of the following question 06 x 02 = 12 Marks

1. Differentiate Process and Program?
2. What is Batch Processing system?
3. What is Context Switching?
4. What is Process Control Block
5. What is Mutual Exclusion?
6. What is a Semaphore?
7. Define Virtual Memory.
8. What is Fragmentation.
9. Mention the two components of file System?

Section- B

II. Answer any Four of the following question 04 x 06 = 24 Marks

10. What is an operating system? Give five functions of OS.
11. What is system call? Explain the types of system calls.
12. Consider the following processes with their CPU burst time in milliseconds & Quantum time=5 Sec.

PROCESS	CPU BURST TIME
P1	10
P2	1
P3	2
P4	5

Draw the Gantt chart illustrating the execution of these processes using Round Robin Algorithm.

Calculate

1. Average waiting time
2. Average turnaround time

13. Explain Solution to Producer-Consumer Problem using semaphore?

14. Explain The Terms Best-Fit and Worst-Fit.

15. Explain various File Accessing Methods.

Section- C

III. Answer any Three of the following question 03 x 08 = 24 Marks

16. a. Explain various services offered by an operating system. 4
    b. Explain Inter Process Communication? 4

17. a. Explain different types of Schedulers? 4
    b. Explain multi-level queue scheduling? 4

18. a. Explain different methods of deadlock prevention 4
    b. Explain Banker's Algorithm? 4

19. a. Write a note on fragmentation? 4
    b. Explain various method used to allocate space to files? 4

20. a What is a file? Explain the various file attributes? 4
    b. Explain the types of Directory Structure? 4
