

Model Question Paper-1
IV Semester B.Sc - Computer Science
Operating System and UNIX

Time :3 Hours

Max.Marks : 70

10x 2 =20

Section - A

Answer any ten questions.. Each question carries 2 Marks.

1. What are the advantages of multiprocessor system.
2. Differentiate between preemptive and non-preemptive scheduling.
3. What is semaphore? Mention two types of semaphore?
4. What is race condition?
5. What are the necessary conditions for deadlocks?
6. What are the functions of memory management?
7. Differentiate between low-level and high level formatting?
8. What are the different types of shell? Explain.
9. Write short notes on different categories of files.
10. What are wildcards? Explain.
11. What are the features of shell script?
12. Write a note on PATH command.

Section - B

Answer any five questions. Each carries 10 Marks.

5* 10 = 50

13. (a) Explain the following: (i) Time-Sharing Systems (ii) Distributed Systems
(b) Explain various components of operating system.
14. (a) Briefly explain process schedulers.
(b) Consider the following set of processes with arrival time and CPU burst time given in (ms). Find the average waiting time, response time and turnaround time using FCFS scheduling algorithm.

Process	Arrival time	CPU Burst Time (ms)
P1	0	8
P2	2	4
P3	4	6

(5)

15. (a) Write short notes on critical regions.

(b) Briefly explain deadlock prevention methods.

16. (a) Briefly explain segmentation.

(b) Consider the reference string { 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1} with frame size 3, explain the FIFO Page Replacement algorithms.

17. (a) Write short notes on: Single level directory structure (ii) Two level directory structure.

18. Consider the track requests in the disk queue (23,, 89,, 132,, 42,, 187), head starts at position 100. Explain and compute the total head movement using the following disk scheduling algorithms.

(i) SSTF (ii) C-SCAN

18. (a) Explain any five file related commands.

(b) Write short notes on UNIX file system.

19. (a) Briefly explain different types of process in UNIX

(b) Write short notes on communication commands.

20. (a) Explain case statement with example.

(b) Write a shell program to reverse a given number, and check whether it is palindrome or not.

Model Question Paper - 2
IV Semester B.Sc - Computer Science
Operating System and UNIX

Time : 3 Hours

Section - A

1. Answer any ten questions. Each question carries 2 Marks.

1. Mention the functions of operating system
2. Differentiate between long-term and short-term scheduling.
3. What is Monitor?
4. What are the methods to handling deadlock?. ?
5. What is critical section? Explain.
6. What is fragmentation? Mention two types of fragmentation.
7. What are the files attributes?
8. Differentiate between foreground and background process.
9. What is super block? Explain.
10. What is pipe? Explain.
11. Explain grep command with example.
12. Write short notes on shell variable?

Section - B

Answer any five questions. Each carries 10 Marks.

5*10=50

13. (a) Explain the following:
(i) Multiprocessor System (ii) Batch System
(b) What is system call? Explain.
14. (a) What is process? Explain process state transition diagram.
(b) Consider the following set of processes with arrival time and CPU burst time given in (ms). Find the average waiting time, response time and turnaround time using Round Robin scheduling algorithm. [use quantum time=20ms]
Process Arrival time CPU Burst Time (ms)

Process	Arrival time	CPU Burst Time (ms)
P1	0	8
P2	2	4
P3	4	6
P4	6	2

15. (a) What is semaphore? Explain two types of semaphores.
 (b) Explain banker's algorithm in deadlock avoidance.
16. (a) Write short on paging (b) What is virtual memory
17. (a) Briefly explain linked list file allocation method
 (b) Consider the track requests in the disk queue (23, 89, 132, 42, 187), head starts at position 100. Explain and compute the total head movement using the following disk scheduling algorithms.
 (i) FCFS (ii) SCAN
18. a) Explain any five directory related commands.
 b) Write short notes on UNIX system architecture.
19. (a) Explain any five process related commands.
 b) What are the main function of system administrator? Explain.
20. (a) Explain any two looping statements with example.
 (b) Write a shell program to print all prime numbers between M and N($M < N$).

Model Question Paper-3
IV Semester B.Sc - Computer Science
Operating System and UNIX

Time :3 Hours

Max.Marks : 70

Section - A

I. Answer any ten questions. Each question carries 2 Marks. 10x2=20

1. What is system program? Explain.
2. What is context switch? Explain.
3. Explain swap() operations in process synchronization.
4. Differentiate between safe and unsafe state.
5. What is critical section? Explain.
6. Explain logical vs physical address space.
7. What is acyclic-graph directories?
8. Differentiate between internal and external commands.
9. What is bootstrapping?
10. Explain chmod command in unix.
11. What is environment variables? Explain.
12. Write is positional parameters?

Section - B

II. Answer any five questions. Each carries 10 Marks.

5 x 10 = 50

13. (a) Explain the following:
(i) Multitasking System (ii) Real-time System
(b) What are the functions of operating system? Explain.
14. (a) What are the operations on process? Explain.
(b) Briefly explain scheduling criteria.
15. (a) Explain dining-philosophers problem in process synchronization.
(b) Briefly explain deadlock detection algorithm.
16. (a) What is compaction? Explain in detail.
(b) Explain steps in handling page fault in demand paging.
17. (a) Explain the following:
(i) Sequential file access (ii) Random file access
(b) Explain the following:
(i) Disk Formatting (ii) Bad Blocks

18. (a) Explain any five external commands in UNIX.
(b) Write short notes on UNIX directory structure.
19. (a) Briefly explain standard I/O Redirection in UNIX.
(b) Explain various grep command in Unix.
20. (a) Explain the following:
(i) Nested Loop (ii) do until loop
(b) Write a shell program to count the number of vowels in a given string