OS Msbte Questions

Operating System (Government Polytechnic, Nagpur)



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PROF – AMRITA RATHOD

SEM - 5

OPERATING SYSTEMS.

OSY

(22516)

MSBTE CHAPTERWISE
Board Questions.

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CHAPTER 1 – Overview of Operating System

1. Define hard and soft real time Operating System. (2M)
2. Describe multiprocessor system with suitable diagram. (4M)
3. Compare between UNIX and Windows Operating System. (Any 4 points) (4M)
4. State and describe any two advantages of multiprocessor system. (2M)
5. Describe working of time-sharing system with neat diagram. (4M)
6. Differentiate between command line-based operating system and GUI based operating system. (Any 4 points) (4M)
7. Define real time operating system. List any four applications of it. (2M)
8. Enlist types of operating system. Explain multiprogramming OS in detail. (4M)

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CHAPTER 2 – Services and Components of Operating System

1. List any four types of system calls. (2M)
2. List operating system components. Describe anyone. (4M)
3. Describe any four process related system calls. (4M)
4. Describe two uses of following operating system tools.
   a) User management
   b) Device management
   c) Task schedular (6M)
5. List and describe any four services of operating system. (4M)
6. Describe various activities performed by following operating system components.
   a) Main memory management
   b) File management (4M)
7. Describe with example, use of following tools:
   a) Device management
   b) Performance monitor
   c) Task scheduler (6M)
8. Explain any four services provided by OS. (2M)
9. What is purpose of system call? State any two system calls with their functions. (4M)
10. Enlist the operating system tools. Explain any two in detail. (6M)

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CHAPTER 3 – Process Management

1. Draw labelled process state diagram. (2M)
2. State the use of KILL command with suitable examples. (2M)
3. Describe shared memory system in IPC with suitable diagram. (4M)
4. Describe PS command with any four options. (4M)
5. Enlist the types of schedular. Describe long term and short term schedular in brief. (4M)
6. Write any six advantages of threads. (6M)
7. Give commands to perform following tasks:
   a) To add delay in script
   b) To terminate a process (2M)
8. Differentiate between shared memory system and message passing system of interprocess communication. (4M)
9. Describe use of ps and wait commands with suitable example. (4M)
10. With suitable diagram, describe use of scheduling queues in process scheduling. (4M)
11. Describe one-to-one multithreading model with suitable diagram. Also write any two advantages of one-to-one model over many-to-one model. (6M)
12. Write syntax of following commands:
    a) Sleep
    b) Kill
13. List components of OS. Explain process management in detail. (4M)
14. With neat diagram explain inter process communication model. (4M)
15. Write Unix command for following:
    a) Create a folder OSY
    b) Create a file FIRST in OSY folder.
    c) List / display all files and directories.
    d) Write command to clear the screen. (4M)
16. State and describe types of schedulers. (4M)
17. Explain PCB with diagram. (4M)
18. Explain multithreading model in detail. (6M)

CHAPTER 4 – CPU Scheduling and Algorithms

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1. State any two scheduling objectives. (2M)
2. Describe any four scheduling criteria of CPU. (4M)
3. Explain four necessary conditions to occur deadlock. (4M)
4. Describe FCFS scheduling algorithm with suitable example. (4M)
5. Calculate average waiting time and turn around time using FCFS scheduling algorithm. (6M)

Process	Burst Time	Arrival Time
P1	8	0
P2	4	1
P3	9	2
P4	5	3

6. State difference between preemptive scheduling and non-preemptive scheduling. (2M)
7. Describe prevention of deadlock occurrence with respect to hold and wait necessary condition. (4M)
8. Write steps required for Banker's algorithm to avoid deadlock. (4M)
9. Calculate average waiting time for following data using FCFS and SJF algorithms. (6M)

Process	Burst Time	Arrival Time
P0	8	0
P1	4	1
P2	5	2
P3	3	3

10. Describe I/O burst and CPU burst cycle with neat diagram. (4M)
11. Explain deadlock? What are necessary conditions for deadlock? (4M)
12. Explain Round Robin algorithm with suitable example. (4M)
13. The jobs are scheduled for execution as follows. (6M)

Process	Burst Time	Arrival Time
P1	7	0
P2	4	1
P3	10	2
P4	6	3
P5	8	4

Solve the problem using: i) SJF ii) FCFS

CHAPTER 5 – Memory Management

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1. Define segmentation and fragmentation. (2M)
2. List free space management techniques. Describe any one with suitable example. (4M) (6M)
3. Explain fixed size memory partitioning with suitable diagram. (4M)
4. Compare between bitmap and linked list free space management techniques. (Any six points) (6M)
5. Define the term fragmentation in terms of memory. (2M)
6. With suitable diagram, describe the concept of variable partitioning of memory. (4M)
7. Describe the concept of virtual memory with respect to paging. Also draw paging hardware diagram and describe its working with example. (6M)
8. Explain partitioning and its types. (4M)
9. Consider page reference string – 2, 3, 5, 1, 2, 4, 2, 5, 3, 2, 5, 3
   Calculate page faults with FIFO and LRU page replacement algorithms. Assume three-page frames. (6M)
10. Consider the following page reference string arrival with three-page frames:
    5, 6, 7, 8, 9, 7, 8, 5, 9, 7, 8, 7, 9, 6, 5, 6
    Calculate number of page faults with Optimal and FIFO page replacement algorithm. (6M)
11. Explain LRU page replacement algorithm for following reference string.
    7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
    Calculate the page fault. (6M)
12. Define virtual memory. (2M)

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CHAPTER 6 – File Management

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1. State any four file attributes. (2M)
2. Enlist different file allocation method and describe any one with suitable example. (4M)
3. Construct directory structure in the term of single level, two level and tree structured and describe in brief. (6M)
4. List any four operations performed on a file. (2M)
5. Describe linked file allocation method with suitable example. Also list its one advantage. (4M)
6. Describe following directory structures in short with neat sketches:
   a) Single level
   b) Two level
   c) Tree structured (6M)
7. Enlist different file allocation methods? Explain contiguous allocation method in detail. (6M)

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