OPERATING SYSTEM

QUESTIONS

~ BY MSBTE_CAMPUS_ACADEMY

IMPORTANTS POINTS

1. **Write all answers point wise if it is definition then also write with points.**

2. **If possible, draw diagram for each answer.**

3. **For 2 marks Question: -**
   - i. **Write minimum 4 points.**
   - ii. **Draw diagram is possible**
   - iii. **Difference between 3 or more Diff**

4. **For 4 marks Questions: -**
   - i. **Write minimum 6 points**
   - ii. **List 2 Advantages / Disadvantages / Features / Characteristics / Types.**
   - iii. **Difference between 5 or more Diff**

5. **For 6 marks Questions: -**
   - i. **Write minimum 8 points**
   - ii. **Diagram compulsory.**

2 Marks

1) Define Operating System.
2) List Functionalities of OS.
3) List any 2 adv and d-adv of batch OS.
4) List any 4 types of OS.
5) Define Realtime OS.
6) List Tools of OS.
7) What are System calls. State any 4 calls.
8) List any 4 services of OS.
9) Layered Structured of OS.
10) List components.
11) Explain Process control Block (PCB).
12) Define process & program.
13) Define process scheduling.
14) List Commands of Linux.
15) What are the benefits of multithreading.
16) Explain preemptive and non preemptive.
17) List advantages and disadvantages of FCFS/SJF/RR.
18) What is deadlock? what are the conditions for deadlocking?

19) State Merits and Demerits of I/O scheduling methods?

20) Enlist direct method of deadlock prevention?

21) Write steps for Banker's algorithm to avoid deadlock?

22) What is partitioning?

23) What is Paging?

24) What is Page Fault?

25) What is file? list Attributes of files.

26) List File Operations.

27) Explain concept of swapping.

28) Explain Tree Structure.

4 Marks

1) Explain Views of OS.
2) Explain Components of Computer System.
3) Explain Components of Operating System.
4) Compare Multiprogramming and multitasking.
5) Explain Real Time and Time-Sharing OS.
6) Explain multiprogramming and multiprocessor.
7) Compare Command line based Gui Based.
8) List and explain any 4 services of OS.
9) Comparison of UNIX and LINUX.
10) Explain System Boot in detail.
11) Explain Process States in detail.
12) Difference between Schedulers (LTS and STS).
13) Explain context Switching in detail.
14) Difference between User and kernel thread.
15) What is inter-process communication? Explain any one technique of it.
16) Describe CPU & I/O burst cycle with the help of a diagram.
17) Difference between Preemptive and non preemptive.

18) List out Scheduling algorithms and explain any one with example.
19) Explain round robin algorithm
20) Explain any 4 List Scheduling Criteria.
21) Explain Multilevel Feedback Queue Scheduling.
22) Describe the necessary conditions for Deadlock.
23) Explain Deadlock avoidance.
24) Explain priority scheduling. Also find out the average waiting time for the given problem.
25) What is partitioning? explain any 1 type of it.
26) Difference between paging and segmentation.
27) Explain concept of virtual memory in detail.
28) Explain any 2-page replacement algorithms with example.
29) Difference between Internal and external Fragmentation.
30) Explain 4 file attributes of file.
31) Explain 4 file operation.
32) Difference between Sequential and Direct Access.
33) Difference between contiguous and linked allocation.
34) Explain any file allocation method with suitable diagram.
35) Explain Directory structure.

6 Marks

1) Explain batch operating system with the help of a diagram.
2) Define System calls. Explain All Categories with examples.
3) List and Explain types of Operating System.
4) Explain Operating System tools.
5) Explain IPC model in detail.
6) Explain multi-threading models.
7) Explain Schedulers with its types.
8) Explain Deadlock in detail.
9) Explain Partitioning and its Types.
10) Explain Concept of virtual memory with diagram.
11) Explain Different File Access Methods with methods.
12) Explain Tree level Structure.

Algorithms Examples

1. The job are scheduled for execution as follows solve the problem using: (i) SIS (ii) FCFS also find average waiting time using Gantt chart.

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

2. Consider the following four jobs. Find average waiting time for (i)FCFS (ii)SJF

Job	Burst Time
J1	8
J2	5
J3	5
J4	13

3. Calculate average waiting time for following scheduling Algorithm. 1) Round Bobin scheduling algorithm (Time slice: 2m sec) 2) SIF scheduling

Jobs	Arrival time	Processing time
A	0	3
B	1	2
C	2	5
D	3	4

4. Solve given problem by using SJF and FCFS scheduling algorithm using Gantt chart. Calculate the average waiting time for each algorithm

Process	Burst time (in ms)
P1	9
P2	7
P3	3
P4	7

5. Solve given problem by using (i) Pre-emptive SJF (ii) Round Robin (Time Slice = 3 ms) Calculate average waiting time using Gantt Chart

Process	Arival tme	Burst time (in ms)
P1	0	8
P2	1	4
P3	2	9
P4	3	5

6. Consider the following sets of processes with arrival time as follows:

Process	Priority	Arrival Time	Burst Time
P1	2	0	5
P2	3	1	6
P3	4	2	7
P$	1	3	3

Find out average waiting time by using :

- Non-preemptive SJF
- Preemptive SJF
- FCFS

7. The Jobs are scheduled for execution as follows-solve the problem using preemptive SJF.Find average waiting time using Gantt chart.

Process	Arrival time	Burst time
P1	0	10
P2	1	4
P3	2	14
P4	3	8