B.Tech CSE, SE and CC
Question Bank (2022-23)
Semester –4th
Subject Name:Operating System

1. Define OS? What are the objectives and characteristics? Explain different functions of operating system.
2. Explain System call and enlist its types.
3. Differentiate short term and medium term schedular.
4. Explain Multitasking, Multiprocessing, and Multiprogramming os.
5. Explain Linux operating system with kernel, memory management and I/O management.
6. Explain Services provided by OS
7. Explain I/O management in Unix.
8. What is Kernel? Describe briefly approaches of designing kernel.
9. List five types of system calls.
10. Explain structure of Operating System.
11. Give the difference between multitasking OS and multiprogramming OS.
12. Explain Distributed OS with neat sketch and give its pros and cons.
13. What is Kernel? Differentiate between Monolithic Kernel and Micro Kernel.
14. Explain Context Switching. Discuss performance evaluation of FCFS (First Come
    First Serve) & RR (Round Robin) scheduling.
15. Explain the features of Time-sharing system.
16. Explain the classical thread model with its implementation strategies.
17. Explain thread implementation in user space with its advantages and disadvantages.
18. Define a process. Differentiate between a process and a program
19. What is scheduler? Explain queuing diagram representation of process scheduler with figure.
20. Explain different types of kernel.
21. Differentiate between Application software & system software?
22. Write various scheduling criteria.
23. Consider Five Processes P1 to P5 arrived at same time. They have estimated running time 10, 2, 6, 8 and 4 seconds, respectively. Their Priorities are 3, 2, 5, 4 and 1, respectively with 5 being highest Priority. Find the average turnaround time and average waiting time for Round Robin (quantum time=3) and Priority Scheduling algorithm.
24. Consider the processes P1, P2, P3, P4 with burst time is 21, 3, 6 and 2 respectively, arrives for execution in the same order, with arrival time 0, draw

GANTT chart and find the average waiting time using the FCFS and SJF scheduling algorithm.

25. Discuss role of OS as a resource manager.
26. What is schedular? Explain different type schedular.
27. Explain the different hardware requirements for modern operating system.
28. What is kernel and shell in Unix operating system? Explain file structure of UNIX operating system. Which command is used to get list of all files along with permissions on that file in UNIX?
29. Explain different types of operating system.
30. Consider the following five processes, with the length of the CPU burst time given in milliseconds. Process Burst time is P1-10, P2-29, P3-3, P4-7,P5-12. Consider the First come First serve (FCFS), Non Preemptive Shortest Job First(SJF), Round Robin(RR) (quantum=10ms) scheduling algorithms. Illustrate the scheduling using Gantt chart. Calculate the Average Waiting Time and Turn Around Time.
31. Use following Scheduling algorithm to calculate ATAT & AWT for the following process.
    i) FCFS
    ii) Pre-emptive and non-Pre-emptive priority

Process	Arrival Time	Brust Time	Available
P1	0	8	3
P2	1	1	1
P3	2	3	2
P4	3	2	3
P5	4	6	4

32. Consider the following five processes with the length of the CPU burst time in milliseconds. Processes are assumed to have arrived at time 0. For the above set of processes find the average waiting time and average around time for each of the following scheduling algorithm using Gantt chart. Consider 1 is highest priority (SJF, Non preemptive Priority. RR (Q = 2)

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

33. Define following terms.
    1. Throughput
    2. Waiting Time
    3. Turnaround Time
    4. Response Time
    5. Short Term Scheduler
    6. CPU Utilization
    7.Distributed Systems.

8.Batch System
9.Real time system
10. Context switching.

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(b) Assume following processes arrive for execution at the time indicated and length of CPU burst time given in ms.

Process	Burst Time	Arrival Time	Priority
P1	10	0	5
P2	6	0	2
P3	7	1	4
P4	4	1	1
P5	5	2	3

Find AWT, ATAT for FCFS, SJF (Non-preemptive) & Round Robin (Quantum – 3 ms)

b. Assume the following processes arrive for execution at the time indicated and the length of cpu burst time given in msec. [10]

Job	Burst time	Priority	Arrival time
P1	10	5	0
P2	6	2	0
P3	7	4	1
P4	4	1	1
P5	5	3	2

For the above process parameters, find average waiting times and average turnaround times for the following scheduling algorithms- First Come First Serve, Shortest Job First, non preemptive priority Round Robin (assume quantum=5 units)

b. Assume the following processes arrive for execution at the time indicated and the length of cpu burst time given in msec. (10)

Job	Burst time	Priority	Arrival time
P1	8	3	3
P2	1	1	1
P3	3	2	2
P4	2	3	3
P5	6	4	4

For the above process parameters, find average waiting times and average turnaround times for the following scheduling algorithms- First Come First Serve, Shortest Job First, non preemptive priority and Round Robin (assume quantum=2 units)