

United College of Engineering and Research, Prayagraj
Department of Computer Science & Engineering
Ist Sessional Examination (2020-2021)
B.Tech. (4th Semester)
Operating Systems

Subject Code: KCS-401

Time: 1.30 hours

Max. Marks: 30

Note: There are three sections in this paper. All sections are compulsory.

Q. N.	Question	Marks	CO	Bloom's level																				
Section-A																								
1	Define Booting.	10	1	L1																				
2	Define the Shell.		1	L1																				
3	What is fork() system call?		1	L1																				
4	Draw the diagram of OS.		1	L1																				
5	What is command line interpreter (CLI).		1	L1																				
6	Why context switching is an overhead in the system?		2	L2																				
7	Why convoy effect occurred and name in scheduling it occurred?		2	L2																				
8	Why starvation may be happened in Priority Scheduling?		2	L2																				
9	Why processes are suspended?		2	L2																				
10	Draw the neat diagram of process state transition.		2	L1																				
Section-B																								
Attempt any two.																								
1	What is the Real Time operating system? What is the difference between Hard real time and Soft Real time operating system?	5	1	L1, L2																				
2	Differentiate Monolithic and Micro kernel. What are the benefits of having kernel as reentrant in the systems?	5	1	L1, L2																				
3	Write short notes on any one the following: (A) Spooling and Buffering (B) Multiprogramming and Batch Processing (C) Distributed and Network OS	5	1	L2																				
Section-C																								
Attempt any one.																								
1	(A) Consider the following process: <table border="1"><thead><tr><th>Process</th><th>Arrival Time</th><th>Burst Time</th><th>Priority</th></tr></thead><tbody><tr><td>P1</td><td>0</td><td>6</td><td>3</td></tr><tr><td>P2</td><td>1</td><td>4</td><td>1</td></tr><tr><td>P3</td><td>2</td><td>5</td><td>2</td></tr><tr><td>P4</td><td>3</td><td>8</td><td>4</td></tr></tbody></table> Draw Gantt chart and calculate the average waiting timing and average turn around time using SRTF , Round Robin (time quantum = 3) and Preemptive Priority Scheduling. Also calculate the throughput .(A smaller number implies a higher priority) (B) What happened if quantum size is too small and if quantum size is large in RR scheduling?	Process	Arrival Time	Burst Time	Priority	P1	0	6	3	P2	1	4	1	P3	2	5	2	P4	3	8	4	10	2	L3
Process	Arrival Time	Burst Time	Priority																					
P1	0	6	3																					
P2	1	4	1																					
P3	2	5	2																					
P4	3	8	4																					

2	<p>(A) Consider the set of processes given in the table and the following scheduling algorithms: i. Round Robin (Quantum=2) ii. Preemptive SJF iii. FCFS Draw the Gantt chart and find the average waiting time and average turn-around time for the algorithms. Also find the throughput.</p> <table><tr><th>Process ID</th><th>Arrival Time</th><th>Execution Time</th></tr><tr><td>A</td><td>0</td><td>4</td></tr><tr><td>B</td><td>2</td><td>7</td></tr><tr><td>C</td><td>3</td><td>3</td></tr><tr><td>D</td><td>3.5</td><td>3</td></tr><tr><td>E</td><td>4</td><td>5</td></tr></table>	Process ID	Arrival Time	Execution Time	A	0	4	B	2	7	C	3	3	D	3.5	3	E	4	5	10	2	L2, L3
Process ID	Arrival Time	Execution Time																				
A	0	4																				
B	2	7																				
C	3	3																				
D	3.5	3																				
E	4	5																				
	<p>(B) How a Thread differ from a Process?</p>																					

Bloom's Taxonomy Level:

1. Remembering, 2. Understanding, 3. Applying, 4. Analyzing, 5. Evaluating, 6. Creating

CO -Course Outcome

