Reg. No.:

Name :

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Mid-Term Examinations – October 2021					
Programme	:	**B.Tech – BCE**	Semester	:	**Fall 2021-22**
Course	:	**Operating System**	Code	:	**CSE3003**
Faculty	:	**Dr.Sharmasth Vali Y**	Slot/Class No.	:	**F11+F12+F13 / 0413**
Time	:	**1½ hours**	Max. Marks	:	**50**

Answer all the Questions

Q. No.	Question Description	Marks
1	Justify the reason why the lack of a hardware-supported dual mode can cause serious shortcoming in an operating system? What is the purpose of system call? (a). fork() (b). wait() (c). readdir()	**10**
2	If a process makes a transition Z, it would result in another process making transition X immediately. (a). transition Z: process executed successfully (b). transition X: process put into ready queue (c). transition Y: new process is scheduled When current execution is completed, another process can be scheduled for execution. So after D, transition B will occur. Justify?	**10**
3	Contemplate the subsequent snapshot of a system. Implement Banker's algorithm to answer the following. (i). What is the content of the matrix Need? (ii). Is the system in a safe state?	**10**
4	Multithreading allows the execution of multiple parts of a program at the same time. Justify. Define Process and PCB?	**10**
5	Study the following set of processes have arrived in the order P1, P2, P3, P4, and P5, with the length of the CPU-burst time given in milliseconds.	**10**

Processes	Allocation			Request			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	0	0	0	0	0	0
P1	2	0	0	2	0	2			
P2	3	0	3	0	0	0			
P3	2	1	1	1	0	0			
P4	0	0	2	0	0	2			

Process	Burst Time	Priority	Arrival Time
P1	10	3	0.0
P2	29	1	4.0
P3	3	4	5.0
P4	7	5	6.0
P5	12	2	7.0

Draw a Gantt charts illustrating the execution of these processes using, non-preemptive SJF and Priority (a smaller priority number implies a higher priority) scheduling algorithms.

Estimate the Waiting time, Average waiting time, Turnaround time and Average Turnaround time of each process for each of the scheduling algorithms using Gantt chart and mention which scheduling algorithm has least Average Waiting time.

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