CHRIST (Deemed to be University), Bangalore - 560029
DEPARTMENT OF COMPUTER SCIENCE
2BCA-A&B- BCA233 - OPERATING SYSTEMS

Assignment: CPU Scheduling Algorithms (25.03.2021)

(1) Consider the following set of processes, with the length of the CPU burst time given in milliseconds and the arrival time as given in the following table.

Process ID	Arrival Time	Burst Time
1	0	4
2	1	7
3	2	6
4	3	5
5	4	10

(a) What is the average waiting time for these processes using First Come First Serve (FCFS) scheduling?
(b) What is the average turnaround time for these processes using FCFS scheduling?

(2) Consider the following set of processes, with the length of the CPU burst time given in milliseconds and the arrival time as given in the following table.

Process ID	Arrival Time	Burst Time
1	0	7
2	2	3
3	4	7
4	5	4

(a) What is the average waiting time for these processes using Shortest Job First (SJF) scheduling?
(b) What is the average turnaround time for these processes using Shortest Job First (SJF) scheduling?

(3) Consider the following set of processes, with the length of the CPU burst time given in milliseconds and arrival time as given in the following table. Time Quantum (q=20 ms).

Process ID	**Arrival Time**	**Burst Time**
1	**0**	**53**
2	**0**	**17**
3	**0**	**68**
4	**0**	**24**

(a) Calculate the waiting time of process 2 and process 3 using Round Robin scheduling algorithm.
(b) Calculate the turnaround time of process 2 and process 3 using Round Robin scheduling algorithm.
(c) Calculate the average response time for these processes using Round Robin scheduling algorithm.

4. Consider five processes, P1, P2, P3, P4 and P5, with CPU burst times of 10, 24, 3, 17, and 12 milliseconds, respectively. Arrival order P1, P2, P3, P4, P5 at time 0 ms. Draw Gantt charts for the FCFS, SJF and RR scheduling algorithms (time quantum of 10 ms).