SelfE_CPU Scheduling

1. Which scheduler choose the process to be executed next by the CPU ?
    a. Short-term
    b. Long-term
    c. Medium-term
2. List the reasons that may cause the dispatcher to do a context switch by replacing the current process by another process
3. ___ type of algorithms will not cause starvation of processes
4. Suggest a way to mitigate the effect of starvation in priority scheduling
5. Which algorithm suffer from Convoy effect and what is the remedy for overcoming that ?
6. Justify that preemption affects the I/O operation performed for a process
7. Differentiate short-term scheduler and dispatcher
8. Suggest the best algorithm to improve the following metrics
    a. Reducing Turnaround time
    b. Reducing Response time
    c. Increasing Throughput
    d. Least overhead in implementing
    e. Least number of context switches
    f. Favoring short processes without requiring burst time value in advance
    g. Causing less damage for I/O bound processes
9. Write the formulas for calculating the following
    a. Turnaround time
    b. Response time
    c. Waiting time
10. Apply the multi-level feedback scheduling on the following processes and calculate the average turnaround time. Assume that there are 3 levels of queues from Q0 to Q2 and a process that is scheduled from Q_i level is allowed to execute 2^{i+1} time units.

Process	Arrival Time	Burst Time
P1	0	12
P2	1	8
P3	2	3
P4	3	4

11. Compute the average waiting time using SRT with the Gantt chart

Process	Arrival Time	Burst Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

12. Compute average TT using preemptive-priority scheduling algorithm. Treat lowest value having highest priority

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	4
P_4	1	5
P_5	5	2

13. Consider the following set of processes, with the length of the CPU burst and arrival time.

Process	Arrival Time	Service Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Draw Gantt chart that illustrates the execution of these processes using the round-robin algorithm with time quantum of 2.

14. Calculate the waiting time of processes using FCFS

Process	A	B	C	D	E
AT	0	2	3	5	7
BT1	3	2	4	6	2
I/O	3	4	3	2	4
BT2	2	3	1	3	5