BIRLA INSTITUTE OF TECHNOLOGY
DEOGHAR CAMPUS
QUIZ: FIRST

Name :   Roll. No:

SUBJECT: CS 239 Operating System   **Time:** 50 minutes

Sem.: IVth   **Branch:** CSE   **Session:** SP/24   **Full Marks: 10**

Instructions:
1. Attempts all the Questions.
2. Overwriting means Cancellation of question.   Set: C

Q 1. Which of the following is NOT a characteristic of MLQ scheduling?   [1mark]
   a) Each queue has its own scheduling policy   b) Queues are permanently assigned to processes
   c) Processes can move between different queues   d) System administrators define queue priorities

Q. 2. **The spawning of process means**...
.... [1mark]

Q.3. The register .... includes the instruction address,
   condition code, and other information to control instruction sequencing and to determine the
   state of the CPU.   [1 Mark]

Q. 4.   Thread shares with other threads belonging to the same process its   [1 Mark]
   (a)   code section and data section   (b)   program Counter
   (c)   register set and stack   (d)   thread id

Q. 5.   Suppose that the following processes arrive for execution at the times indicated. Each process will run
   the listed amount of time.

Process	Arrival Time	CPU Burst Time	Priority
P1	0	11	2
P2	5	28	0
P3	12	2	3
P4	2	10	1
P5	9	16	4

Answer the following questions:
Draw the Gantt chart and calculate the average Turn-around time for the following
Scheduling algorithms.
   (a)   Priority (Preemptive) Scheduling algorithm   [2marks]
   (b)   Priority (Non Preemptive) Scheduling algorithm   [2marks]

Q. 6.   Fill in the blanks in the following statement.
   "Liu and Layland (1973) have shown that RM scheduling may not be able to avoid
   deadline overruns if the total fraction of CPU time used by the processes according to
   Eq. (7.4) exceeds ...., where m is the number of processes. This expression has
   a lower bound of ...., which implies that if an application has a large number of
   processes, RM scheduling may not be able to achieve more than ....percent CPU
   utilization if it is to meet deadlines of processes."   [2marks]

Eq.(7.4).. $\sum_{i=1..n} \dfrac{x_i}{T_i} \leq 1$