COURSE CODE (CREDITS): 19B1WEC731(3)   MAX. MARKS: 15

COURSE NAME: REAL TIME OPERATING SYSTEM

COURSE INSTRUCTORS: Dr. Rajiv Kumar   MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q-1. a) Mention two distinctions of the Real-Time Operating System in comparison to the general purpose operating system.   [1,CO-1]

b) Explain with examples of each, real-time as a qualitative and quantitative notion of time.
                                                                          [1,CO-1]

c) Give six reasons for the growth of embedded devices?   [1,CO-4]

d) What kind of support provides an operating system in an embedded device?   [1,CO-4]

Q-2. a) Justify the failure state of a system with respect to its utility for the users in the cases of hard, soft and firm real-time.   [3,CO-1]

b) What is the concept of task scheduling in the case of the real-time system? Give one merit and one demerit to table-driven and clock-driven schedulers. [3,CO-1]

Q-3 a) Why frame size selected by the scheduler is an important design parameter? Explain in terms of two constraints.   [3,CO-3]

b) Go through the following statement:

"Consider the task T_i with period = 5 and execution time = 3 Assume the release time of the first job is zero. So the job of this task is first released at $t = 0$ then it executes for 3s and then the next job is released at $t = 5$ which executes for 3s and then the next job is released at $t = 10$. So jobs are released at $t = 5k$ where $k = 0, 1, ..., n$".

Draw the tasks with respect to time. Also mention the important time instants on it.
                                                                          [2,CO-3]