

JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT

END SEMESTER EXAMINATION-2015

B.Tech(ECE)7th SEM/ M.Tech(ECE) 2nd SEM

COURSE CODE: 12M1WEC232

MAX. MARKS: 15

COURSE NAME: REAL-TIME EMBEDDED SYSTEMS

COURSE CREDITS: 03

MAX. TIME: 1 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q-1: Explain the following terms with reference to task scheduling: [1*5=5]

- a) Task instance
- b) Absolute and relative deadline
- c) Scheduling point
- d) Valid schedule
- e) Proficient schedule

Q-2: Explain the characteristics of real-time system with example? [2]

Q-3: What is rate monotonic algorithm (RMA)? Explain its necessary and sufficient conditions. [2]

Q-4: What are different types of timing constraints that can occur in a system? Give example of each. [3]

Q-5: Construct EFSM model of a telephone system whose partial behavior is described below:

After lifting the receiver handset, the dial tone should appear within 20 seconds. If a dial tone can be given within 20 seconds, then an idle tone is produced. After the dial tone appears, the first digit should be dialed within 10 seconds and the subsequent five digits within 5 seconds of each other. If the dialing of the digit is delayed, then an idle tone is produced. The idle tone continues until the receiver handset is replaced. [3]