

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**M.Tech. Summer 2018 – 19 Examination**

**Semester: 2****Subject Code: 203212151****Subject Name: Real Time Operating System Fundamentals****Date: 06/05/2019****Time: 10:30am to 01:00pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1** A) Compare Windows Os and UNIX Os. **(05)**

B) Write advantages and disadvantages of RMA algorithm. **(05)**

C) Discuss various types of timing constraints in Real time embedded system. **(05)**

**Q.2** Answer the following questions. (Attempt any three) (Each five mark) **(15)**

A) Explain RR & SR deadline constraint with example.

B) Explain the terms: Task Instance, Relative dead line, Absolute deadline, Response time, Task precedence, and data sharing.

C) Explain shortcomings of EDF algorithm.

D) Explain constraints on frame size selection for cyclic scheduling.

**Q.3** A) Write short note on table driven scheduling algorithm. **(07)**

B) Select an appropriate frame size if a cyclic scheduler is to be used to run the following set of periodic tasks on a uniprocessor: **(08)**

T1 : (e1=1, p1=d1=4), T2 : (e2=1, p2=d2=5), T3 : (e3=1, p3=d3=20), T4 : (e4=2, p4=d4=20).

**OR**

B) Explain the terms: Valid schedule, Feasible schedule, Proficient scheduler, and optimal scheduler. **(08)**

**Q.4** A) Explain the term safety and reliability with example. **(07)**

**OR**

A) Draw and explain block diagram of real time embedded system. **(07)**

B) Prove that, the major cycle of set of tasks ST {t1,t2..tn} is LCM{p1,p2,..pn} even when tasks have arbitrary phasing. **(08)**