

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech., Summer 2017-18 Examination

Semester: 2
Subject Code: 03212151
Subject Name: Real Time Operating System Fundamentals

Date: 18/05/2018
Time: 2:00 pm to 4:30 pm
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) Explain real time tasks and their characteristics. **(05)**
B) Model SS & RS deadline constraint considering appropriate example. **(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) Draw and explain block diagram of real time embedded system. **(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) Write advantages and disadvantages of RMA algorithm. **(07)**

- B) Write short note on table driven scheduling algorithm. **(08)**