

**COURSE CODE: DCAP608**

**COURSE TITLE: REAL TIME SYSTEMS**

**Time Allowed: 3 hours**

**Max. Marks: 80**

*1. This paper contains 10 questions divided in two parts on 1 page.*

*2. Part A is compulsory.*

*3. In Part B (Questions 2 to 10), attempt any 6 questions out of 9. Attempt all parts of the selected question.*

*4. The marks assigned to each question are shown at the end of each question in square brackets.*

*5. Answer all questions in serial order.*

*6. The student is required to attempt the question paper in English medium only.*

**Part A**

Q1:

- a) What do you understand from real time system?
- b) Differentiate between hard and soft real time system.
- c) Define the term resources with the help of example.
- d) What do you understand from the term release time?
- e) Define data dependency in real time system.
- f) Differentiate between online and offline scheduling.
- g) Define the concept of rate monotonic.
- h) What are the cons of clock driven scheduling?
- i) Why scheduling of jobs required?
- j) Differentiate between release time and deadline.

[2×10=20]

**Part B**

Q2: With the help of example explain the various applications of real time system. [10]

Q3: What do you understand from the term 'time constraints'? With the help of example elucidate various hard and soft real time constraints. [10]

Q4: Elucidate the reference model of real time system. [10]

Q5: With the help of example explain clock driven approach of scheduling in real time system. [10]

Q6: With the help of example elucidate the Optimality of the EDF and LST Algorithm. [10]

Q7: Elucidate the priority driven approach of real time scheduling along with the Challenges in validating Timing Constraints in Priority-Driven System. [10]

Q8: With the help of example elucidate the Schedulability Test for Fixed-Priority Tasks with Short Response Time. [10]

Q9: Explain the algorithm for constructing static schedule. Explain the process for Scheduling Sporadic Jobs. [10]

Q10: Explain various practical factors which are required for the Sufficient Schedulability conditions for the RM and DM Algorithm. [10]