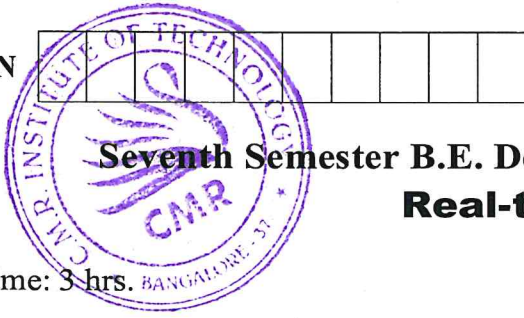


USN



10EC/TE762

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021
Real-time Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1
 - a. Define real-time system. Classify them based on time constraints. (06 Marks)
 - b. Explain the different classifications of RTS with examples. (06 Marks)
 - c. Explain the classification of programming. (08 Marks)
- 2
 - a. What is DDC? What are the advantages of DDC over analog control? Discuss PID control algorithms. (10 Marks)
 - b. Write a note on supervisory control. (05 Marks)
 - c. Explain hierarchical system with an example. (05 Marks)
- 3
 - a. What is a purpose of specialized processors in RTS? Explain different forms of parallel computer architecture. (10 Marks)
 - b. With a neat diagram, explain digital input interface. (06 Marks)
 - c. Write a note on DMA. (04 Marks)
- 4
 - a. List and explain the major requirements for a real-time language. (10 Marks)
 - b. Explain the following :
 - i) Exception handling
 - ii) Derived data types
 - iii) Scope and visibility of variables
 - iv) Explain co-routines. (10 Marks)

PART – B

- 5
 - a. Explain the typical structure of RTOS with a neat diagram. (08 Marks)
 - b. Explain priority structures in brief. (08 Marks)
 - c. Explain scheduling strategies. (04 Marks)
- 6
 - a. Explain the general structure of IOSS. (08 Marks)
 - b. What is code sharing? Explain the types of code sharing. (08 Marks)
 - c. What is liveness? Explain. (04 Marks)
- 7
 - a. Explain the basic software modules with reference to RTS. (06 Marks)
 - b. Explain fore ground and background system with a flow chart. (08 Marks)
 - c. Explain mutual exclusion using conditional flags. (06 Marks)
- 8
 - a. Explain the general arrangement of drying oven along with the functional specification. (08 Marks)
 - b. Explain the outline of abstract modeling approach of 'Ward' and 'Mellor'. (08 Marks)
 - c. Explain Yourdon methodology. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.