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10EC/TE762

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020

Real Time Systems

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Define real time systems. Explain the different classifications of RTS with examples. **(10 Marks)**

b. Define the term "time constraint". Explain them with appropriate equations and the RTS classification based on time constraint. **(10 Marks)**

2 a. With a neat sketch, explain the sequence control for a single chemical reactor vessel. **(07 Marks)**

b. With neat diagram, explain loop control and list the advantages of loop control over analog control. **(07 Marks)**

c. Write a note on distributed system. **(06 Marks)**

3 a. Explain Pulse interface for input and output operation, with a neat block diagram. **(10 Marks)**

b. Explain the ISO seven layer model for data communication. **(10 Marks)**

4 a. Explain the following terms:
i) Security
ii) Readability
iii) Portability **(09 Marks)**

b. Explain the following data types:
i) Sub range type
ii) Derived type **(05 Marks)**

c. Explain: (i) Exception handling (ii) Co-routine **(06 Marks)**

PART – B

5 a. List the functions of task management. Explain with a neat diagram task state diagram and task states. **(12 Marks)**

b. Explain the different priority structures, adopted in designing a RTS. **(08 Marks)**

6 a. Discuss the significance of memory management and hence explain task chaining and swapping. **(10 Marks)**

b. What is code sharing? Explain: (i) Serially reusable code (ii) Reentrant code. **(10 Marks)**

7 a. Explain software design related to preliminary design of RTSS with neat diagram. **(06 Marks)**

b. With a flow chart, explain foreground/background approach. **(08 Marks)**

c. Explain multitasking approach. **(06 Marks)**

8 a. Explain context diagram for drying oven in case of Ward and Mellor method. **(10 Marks)**

b. Bring out the difference between Ward and Mellor and Hatley and Pirabhai methodologies. **(04 Marks)**

c. Explain architecture model with neat diagram in case of Hatley and Pirabhai method. **(06 Marks)**

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