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Seventh Semester B.E. Degree Examination, Jan./Feb. 2021

Real Time Systems

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define Real Time System. Explain different classification of Real Time System with example. (08 Marks)
- b. Explain computer control system showing hardware and software interface. (06 Marks)
- c. Discuss different types of programs in system design. (06 Marks)

OR

- 2 a. Explain sequence control for single chemical reactor vessel with diagram. (08 Marks)
- b. Explain the following: i) Batch process ii) Continuous process. (06 Marks)
- c. Write a short note on hierarchical system. (06 Marks)

Module-2

- 3 a. Explain Digital input and output Interface with diagrams. (10 Marks)
- b. Explain different forms of parallel computer architectures. (10 Marks)

OR

- 4 a. Explain daisy chains interrupt structure. (08 Marks)
- b. Write a note on multilevel interrupts. (06 Marks)
- c. Discuss Asynchronous and Synchronous Transmission techniques. (06 Marks)

Module-3

- 5 a. Explain the following: i) Security ii) Readability iii) Portability iv) Efficiency. (10 Marks)
- b. Discuss different data types with example. (10 Marks)

OR

- 6 a. Explain briefly declaration and initialization of variables and constants. (08 Marks)
- b. Write a short note on exception handling. (06 Marks)
- c. Explain Coroutines. (06 Marks)

Module-4

- 7 a. Explain typical structure of Real time operating system with diagram. (08 Marks)
- b. Describe different types of scheduling strategies. (06 Marks)
- c. Explain task chaining and swapping with diagram. (06 Marks)

OR

- 8 a. Explain general structure of Input output subsystem. (08 Marks)
- b. Explain: i) Serially reusable code ii) Re-entrant code. (06 Marks)
- c. Write a note on monitors. (06 Marks)

**Module-5**

- 9 a. Explain planning phase and development phase related to design of Real time system. (10 Marks)
- b. Describe foreground background approach with reference to Real time system design. (10 Marks)

OR

- 10 a. Explain context diagram for drying oven in case of Ward and Mellor method. (06 Marks)
- b. Differentiate between Ward and Mellor and Hatley and Pirbhai methodologies. (06 Marks)
- c. Explain requirement model in case of Hatley and Pirbhai method. (08 Marks)

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