CBCS SCHEME

USN | | | | | | | | | | |

18ECS323

Third Semester M.Tech. 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. Discuss the brief history of Real Time Systems. **(10 Marks)**

b. Explain the Real Time Services with necessary diagrams. **(10 Marks)**

OR

2 a. Explain the three types of Resource Utility in Real time Embedded System. **(10 Marks)**

b. Explain the following with respect to Real time System:
(i) Scheduler concepts
(ii) Preemptive and non-preemptive schedules **(10 Marks)**

Module-2

3 a. Explain the types of feasibility tests in Real time Systems. **(10 Marks)**

b. Explain:
(i) Deadline-monotonic policy
(ii) Dynamic-priority policy **(10 Marks)**

OR

4 a. Explain the IO Architectures with a neat diagram. **(08 Marks)**

b. Explain the usage of flash file system. **(07 Marks)**

c. Explain shared memory concept. **(05 Marks)**

Module-3

5 a. Explain the following:
(i) Dead lock
(ii) Live lock
(iii) Priority inversion **(12 Marks)**

b. Explain the ways of Handling Missed Deadlines and Quality of Service (QoS) for a Real Time System. **(08 Marks)**

OR

6 a. Explain Mixed Hard and Soft Real Time Services. **(08 Marks)**

b. Explain conditions that are necessary for unbounded inversion scenario. **(12 Marks)**

Module-4

7 a. Explain Firmware components of embedded system. **(08 Marks)**

b. Explain the most fundamental services and mechanisms provided by operating system. **(12 Marks)**

OR

8 a. Explain message Queue communication and Heap Queue Communication between Tasks with diagram. **(10 Marks)**

b. Explain the following:
(i) Test access ports
(ii) Trace ports **(10 Marks)**

Module-5

9 a. Explain basic concepts of drill-down tuning. **(10 Marks)**

b. Discuss the similarities and differences of reliability and availability. **(10 Marks)**

OR

10 a. Explain Hardware-supported profiling and tracing. **(10 Marks)**

b. Write short notes on:
(i) Reliable software
(ii) Design Trade-offs **(10 Marks)**

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