B. TECH
(SEM VI) THEORY EXAMINATION 2022-23
REAL TIME SYSTEMS

Time: 3 Hours   *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   Attempt *all* questions in brief.   2 x 10 = 20

a.   Write short notes in task scheduling.

b.   Explain Priority Driven Approaches.

c.   Elaborate RAC.

d.   Discuss the real time applications.

e.   Compare open system with a close system.

f.   Discuss the Multiple-Unit Resource?

g.   Discuss the data dependency.

h.   Explain the features of RTOS.

i.   Differentiate between dynamic & static system.

j.   Define timing constraints in real time system.

SECTION B

2.   Attempt any *three* of the following: 10x3=30

a.   Explain the concept and application of typical real time system.

b.   Illustrate the common approaches to real time scheduling explain clock driven and weighted round robin approaches in detail.

c.   Explain the concept of stack based priority ceiling protocols in real time resource Sharing.

d.   Describe the concept of Internet and Resource Reservation Protocols.

e.   Write an overview on commercial real time databases.

SECTION C

3.   Attempt any *one* part of the following: 10x1=10

a.   Write the differences between hard real time system and soft real time system.

b.   Explain temporal parameters of real time workload & periodic task model.

4.   Attempt any *one* part of the following: 10x1=10

a.   Explain the optimality of effective deadline first & least slack time first.

b. Explain scheduling aperiodic and sporadic jobs in priority driven and clock driven systems.

5. **Attempt any *one* part of the following:**   **10x1=10**

a. Explain about the applications and services under the concurrency control in real time operating systems.

b. Discuss the effect of resources contention and resource access control?

6. **Attempt any *one* part of the following:**   **10x1=10**

a. Describe the concept of Medium Access Control Protocols for Broadcast Networks in Real Time Communication.

b. Discuss the model of Real time communication. Write down the basic concepts in real time communication.

7. **Attempt any *one* part of the following:**   **10x1=10**

a. Write a short note on
    (i)   UNIX as RTOS.
    (ii) POSIX Issues.

b. Explain in brief characteristics of temporal data and discuss the process of achieving.