9. (a) Enlist various causes of the faults/failures. State some techniques to avoid them. 7

   (b) What are different types of fault ? State the detection methods for each of them. 7

OR

10. (a) Explain the types of faults that can be tolerated and the faults that can not be tolerated. Also explain the situation for that. 7

    (b) What is the role of redundancy in fault tolerance ? Explain hardware redundancy in detail. 7

11. (a) Write a short note on window as a real time operating system. How is it different from traditional windows operating system ? 6

    (b) What problems do we have to face in unix real time operating system while handling the real time applications. 7

OR

12. (a) Explain the problems that you would encounter, if you try to develop and run a hard-real time applications on the Windows NT Operating System. 6

    (b) What is non-preemptive Kernel in UNIX Real Time Operating System ? 7

Faculty of Engineering & Technology
Seventh Semester B.E. (C.S.E.) (C.B.S.) Examination
Elective—II : REAL TIME OPERATING SYSTEM

Time—Three Hours]   [Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.

(2) Solve Question No. **1 OR** Question No. **2**.

(3) Solve Question No. **3 OR** Question No. **4**.

(4) Solve Question No. **5 OR** Question No. **6**.

(5) Solve Question No. **7 OR** Question No. **8**.

(6) Solve Question No. **9 OR** Question No. **10**.

(7) Solve Question No. **11 OR** Question No. **12**.

(8) Due credit will be given to neatness and adequate dimensions.

1. (a) What is Hard Real-Time as well as Soft Real-Time system ? Explain with example. 6

   (b) Explain all the parameters which tell about Job's timing and behaviour constraints of real time workload. 7

OR

2. (a) What are precedence constraints ? Draw the precedence graph for the different tasks. 7

(b) Explain with example, functional parameters of job ji of real-time workload. 6

3. (a) Explain preemptive and non-preemptive priority driven scheduling approach with an example. 7

(b) Write short notes on :

(i) Absolute deadline

(ii) Soft timing constraints. 6

OR

4. (a) Discuss EDF scheduling of sporadic jobs. 6

(b) Explain weighted round robin approach for-time shared application. Consider two jobs J_1 and J_2 execute on processor P_1 and P_2. Release time for all jobs is '0' and execution time is '1' draw round-robin scheduling for following jobs. 7

$J_{1,1}$ $J_{1,2}$

$J_{2,1}$ $J_{2,2}$
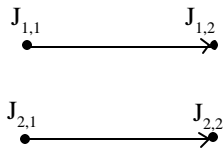
5. (a) Explain few practical applications requiring the use of a real-time database. 6

(b) Explain petri net based designing for real time system. 7

OR

6. (a) What are the issues, designers have to face while designing real time system ? 6

(b) Write short notes on :

(i) Locking based concurrency control

(ii) Optimistic concurrency control. 7

7. (a) Write short notes on :

(i) Overloading in programming language

(ii) Multitasking. 7

(b) Explain the features of real time object oriented programming language. 7

OR

8. (a) What is the difference between error and exception ? Explain how to handle run time error in real time system ? 7

(b) What are packages in programming language ? Explain types of packages used for real time system. 7