B.E. (Computer Science & Engineering) Seventh Semester (C.B.S.)

Elective - II : Real Time Operating System

P. Pages : 2 **TKN/KS/16/7581**

Time : Three Hours * 1 0 4 8 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What do you understand by term real time? How the concept of real time different from the traditional notion of time? Explain your answer using suitable example. **6**

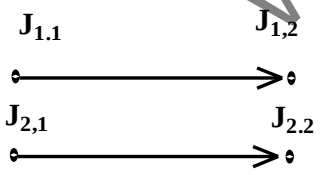
b) Explain an car assembly plant automation system as a Real – Time system. What are real time feature in that system. **7**

OR

2. a) What are different characteristics of an Real time system. **7**

b) Explain with Example functional parameters of job J_i of Real time workload. **6**

3. a) Explain weighted round- robin approach for time – shared application. Consider two jobs J_1 & J_2 execute on processor. P_1 & P_2. Release time for all jobs is 0 and execution time is 1. Draw round robin scheduling for following jobs. **6**



b) Draw the greedy scheduling for **7**
i) Preemptive b) Non – preemptive jobs.

OR

4. a) Explain off – line versus on-line scheduling Explain with examples. **6**

b) Explain EDF scheduling in RTOS, also draw queue structure for EDF scheduling. **7**

5. a) What are the issues designer have of face while designing real time system. **6**

b) How a real time databases differs from a conventional database. **7**

OR

6. a) What is concurrency control. Explain locking Based concurrency control. **6**

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

7. a) Explain any one object – oriented real-time programming language and its feature. **7**

b) What is difference between error and exception. Explain how to handle run time error in real time system. **7**

OR

8. a) What is packages in programming language. Explain types of packages use for real time system. **7**

b) What is overloading? How it is differ from overriding. **7**

9. a) Can Hardware redundancy reduce faults? Explain with Example.

b) What is software redundancy? Draw and explain different software fault-tolerance structure. **7**

OR

10. a) State various causes of the failures. Explain some techniques to avoid them. **7**

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

11. a) Write short note on RT- Linux as a real time operating system. **7**

b) What is non-preemptive kernel in UNIX real time operating system. **6**

OR

12. a) What problems we have to face in Unix real time operating system while handling the real time applications. **7**

b) Write a case study on Windows as RTOS. **6**

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