

Total No. of Questions :12]

SEAT No. :

P1791

[4859]-193

[Total No. of Pages :3

B.E (Information Technology)

REAL TIME SYSTEM

(2008 Pattern) (Semester - II) (Elective - III)

Time : 3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answer 3 questions from section I and 3 questions from section II.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of calculator is allowed.*
- 6) Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Describe the classification of real time systems with suitable example. What are the issues in real time computing. [8]
- b) What are traditional performance measures of real time systems? Discuss the properties of traditional performance. [8]

OR

- Q2)** a) What are the various factors that are to be considered while estimating the program run time in real-time systems? Describe each in detail. [8]
- b) Explain with the block diagram the structure of the real-time system. [8]
- Q3)** a) What are the assumptions made by Rate Monotonic Algorithm? Explain the Rate Monotonic Algorithm with the help of suitable example. [10]
- b) What is priority Inversion problem? How do we overcome it? [8]

OR

P.T.O.

Q4) a) Determine which of following tasks is RM schedulable. [10]

Task	Execution Time	Period
1	4	20
2	10	40
3	40	80
4	10	100

b) Compare fixed priority and dynamic priority algorithm. Explain EDF Algorithm with the help of suitable example. [8]

Q5) a) Discuss the desired characteristics of Real time Language. [8]

b) Explain Main memory databases in detail. [8]

OR

Q6) a) What do you mean by concurrency control? Explain optimistic concurrency control. [8]

b) Explain AED algorithm in detail. [8]

SECTION - II

Q7) a) Describe timed token Protocol in detail. [10]

b) Discuss network architecture issues in real time systems. [8]

OR

Q8) a) Explain VTCSMA algorithm with the help of block diagram. [10]

b) Explain Polled bus protocol with the help of suitable example. [8]

Q9) Write short note on following mechanisms present in RTOS: [16]

a) Time services

b) Scheduling Mechanisms

OR

- Q10)a)** List and explain the capabilities of RTOS. [6]
- b) Discuss the following operating system functions with respect to real time systems. [10]
- i) Memory Management
 - ii) IO and Networking

- Q11)a)** Discuss how software redundancy helps to achieve faults tolerance. [8]
- b) Explain hardware reliability model with respect to permanent faults. [8]

OR

- Q12)a)** What are the causes of failure? Describe integrated failure handling. [8]
- b) Write short note on classification of faults. [8]

EEE