

Total No. of Questions : 10]

SEAT No. :

P3990

[4959]-1142

[Total No. of Pages :2

B.E.(I T)

REAL TIME & EMBEDDED SYSTEMS

(2012 Course) (Semester-II)(End Sem)(Elective-IV)(414464B)

Time :2½Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q1 or Q2,Q3or Q4, Q5 or Q6 , Q 7 orQ 8, Q 9 or Q10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) a) Discuss the advantages and disadvantages of top-down and bottom-up design process in embedded system design. **[6]**

b) Explain Myrinet with suitable Myrinet network diagram. **[4]**

OR

Q2) a) Draw & explain general architecture of embedded system & explain components in it. **[6]**

b) What are main features of CAN2.0 bus standards **[4]**

Q3) a) List the key features of SHARC processor and discuss the targeted application areas for this processor. **[6]**

b) Explain the structure of 12C bus, Draw state transition diagram for 12C bus master. **[4]**

OR

Q4) a) Discuss various modes of operation of ARM processor with respect to their operational usability. **[6]**

b) Calculate a message delay for 12C bus operating at 400 kilobits per second. The data size of the message is 14 bytes. **[4]**

Q5) a) Use RMS scheduler for scheduling a periodic task set of T1(2, 4)& T2(4, 8). Perform schedulability check & comment on whether given task set is schedulable & schedule produced is feasible. **[10]**

b) Give the classification of the scheduling algorithms, compare and contrast static vs.dynamic algorithms with examples. **[8]**

OR

P.T.O.

- Q6)** a) Use EDF scheduler for scheduling a periodic task set of T1(1, 3, 3)&T2 (4,6,6). Perform schedulability check & comment on whether given task set is schedulable & schedule produced is feasible. [10]
- b) Give the structure of cyclic scheduler. Discuss the advantages and disadvantages of cyclic scheduler. [8]

- Q7)** a) State & explain priority inversion problem with appropriate example & name protocols used to remove this problem. [8]
- b) What is resource reclaiming? State needs of resource reclaiming algorithm. [8]

OR

- Q8)** a) With appropriate example prove that priority ceiling protocol avoids deadlock. [8]
- b) State algorithms for combined scheduling of periodic & aperiodic tasks & Compare them. [8]

- Q9)** a) State & explain features & characteristics of Real time operating system (RTOS). [8]
- b) Explain in detail any one commercial RTOS. [8]

OR

- Q10)** a) State & explain, features & characteristics of Real Time Databases. [8]
- b) Explain in detail any one commercial Real Time Database. [8]

