

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, Q3 or Q4, Q5 or Q6, Q 7 or Q 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]

