

M.E. First Semester (Information Technology) (Full Time) (C.G.S.)
13421 : Real Time Embedded System Design : 1 NMEF 4

P. Pages : 2

Time : Three Hours



AX - 3473

Max. Marks : 80

- Notes : 1. Assume suitable data wherever necessary.
2. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Explain : a) Signal b) Mail Box 6
b) What do you mean by priority inversion? Explain with an example. 7

OR

2. a) Differentiate between Semaphore and Mutex. 6
b) Explain : a) Timer, b) Pipes 7
3. a) Explain the PIC 18 timer. 7
b) What RISC stands for? Explain some of the features of RISC as implemented by PIC 18 micro controller. 7

OR

4. a) Show the status of the C, DC and Z flag after the addition of 9 CH and 64 H in the following instruction 7
MOV LW 9 CH
ADD LW 64 H
b) List the different assembler directive and explain any three of them. 7
5. a) What is an interrupt? Explain how it can be enabled and disabled. 6
b) Write a PIC 18 program to get a byte of data from port C. If it is less than 100 send it to port B otherwise send it to port D. 7

OR

6. a) Explain following instructions 6
1) BNZ 2) BCF
3) RCALL
b) Write a PIC 18 program to toggle all the bits of port C and port D continuously with a 250 ms delay. 7

7. a) Draw a network flow graph which can be used to find a preemptive cyclic schedule of the periodic task $T_1 = (3, 1, 7)$, $T_2 = (4, 1)$ and $T_3 = (6, 2, 4, 8)$ 8
- b) Explain the advantages and disadvantages of clock driven scheduling. 6

OR

8. a) What is a static Schedule? Explain the algorithm for Scheduling Independent preemptable task. 7
- b) What is a sporadic job? Explain its Scheduling. 7
9. a) Give two different explanation why the periodic task $(2, 1)$, $(4, 1)$ and $(8, 2)$ are Schedulable by the RM algorithm. 7
- b) Distinguish between fixed priority and dynamic priority algorithm. 6

OR

10. a) Explain the EDF algorithm. 7
- b) Explain : 6
- i) Busy Intervals
- ii) Context Switch
11. a) Explain the constant utilization server algorithm. 7
- b) Compare polled execution with bandwidth preserving server. 6

OR

12. a) Explain operations of a Deferrable Server. 7
- b) What is a sporadic job? Explain its Schedulability in deadline driven system. 6
