

M.E. Second Semester (Computer Engineering) (Full Time) (C.G.S.)  
**13131 : Embedded System Design**  
**2 KMEF 3**

P. Pages : 2

Time : Three Hours



**AW - 3688**

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and chemical equations should be given wherever necessary.
  5. Illustrate your answer necessary with the help of neat sketches.
  6. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. a) Differentiate between general purpose computing system and embedded system. 7  
b) Explain the concept of memory management. 6

**OR**

2. a) What is task scheduling ? Explain various scheduling Algorithm ? 7  
b) How semaphore is used for task synchronization. 6
3. a) Explain hardware architecture of ATMEL 89C51 microcontroller with suitable block diagram. 8  
b) Explain PIC directives. 6

**OR**

4. a) Define Timer 0 and 1. How to calculate delay and related register value. 7  
b) Draw PIC18F458/452 pin diagram and explain it in brief. 7
5. a) What are the content of WREG after executing following code 7  
    MOVLW     0x55  
    MOVWF     PORTB  
    MOVWL     0xAA  
    MOVWL     PORTB  
    BRA       OVER  
b) Write down the steps in programming the A/D converter using polling. 6

**OR**

6. a) LED are connected to bit in PORTB and PORTC. Write C18 program that shows the count from 00H to FFH on LEDs. 7

- b) State and explain different branch condition. 6

**SECTION - B**

7. a) Explain in brief algorithm for constructing static schedules. 7  
b) Write the notation and assumptions of clock driven scheduling. 6

**OR**

8. a) Explain in brief how to handle frame overrun and how to do mode changes. 7  
b) Explain in brief pros and cons of clock driven scheduling. 6  
9. a) Explain the schedulability test for fixed priority tasks with arbitrary response time. 7  
b) Explain comparison between fixed priority and dynamic priority algorithm. 7

**OR**

10. a) Explain scheduling utilization of RM algorithm for multiframe tasks. 7  
b) Explain in brief schedulability test for EDF algorithm. 7  
11. a) Explain the following terms : 6  
i) Time demand analysis method  
ii) Schedulable utilization  
iii) Deferrable server with arbitrary fixed priority.  
b) Explain how bandwidth preserving server works ? 7

**OR**

12. a) Explain in brief A simple acceptance test in Deadline Driven System. 7  
b) Explain the preemptive weighted fair queuing algorithm. 6

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