Question Bank (I scheme)

**Name of Subject: Embedded Systems (ESY) Unit Test: II**

**Subject Code: 22532 Course: EJ5I Semester: V**

 **Chapter 4 : Interfacing Input and Output devices (18 marks)**

**2 Marks**

1. Draw interfacing diagram of 16X2 LCD Display with 89C51and state the functions of: i) RS ii) EN iii) R/W iv) VEE
2. Draw interfacing diagram to interface 89C51 microcontroller with four 7- Segment LED display.
3. Draw labeled interfacing diagram to interface 4x4 keyboard matrix with microcontroller 89C51

**4 Marks**

1. Draw labeled interfacing diagram to interface LED to P2.0 of 89C51. Write89C51 ‘C’ program to turn on and off LED after some delay.
2. Draw labeled interfacing diagram to interface 4x4 keyboard matrix with microcontroller and write a C program to read it.
3. Draw the labeled diagram of interfacing DAC with 89C51 microcontroller and Write a program in ‘C’ language for generating triangular waveform using DAC 0808.
4. Draw labeled interfacing diagram of ADC 0808 with 89C51 microcontroller. Write 89C51 ‘C’ Program to read the analog data.
5. Write 89C51 ‘C’ Program to rotate stepper motor 900 in clock wise direction. Motor has step angle of 1.80. Use the stepper motor in full step sequence.
6. Draw labeled interfacing diagram write a program to display welcome to LCD
7. Draw interfacing diagram to interface 89C51 microcontroller with four 7- Segment LED display.
8. Draw labeled interfacing diagram to interface DC motor with 89C51microcontroller and write a program in ‘C’ to rotate anticlockwise by 1800.

 **Chapter 5: Real Time Operating Systems (12 marks)**

**2 Marks**

1. Differentiate RTOS with desktop operating system (Any four points).
2. Describe any 4 specifications of RTOS. Give any 4 examples of RTOS.

**4 Mark**

1. Explain inter process communication in brief. State various inter process communication methods.
2. Describe round robin scheduling algorithm with suitable diagram.
3. List scheduling algorithms of RTOS. Describe concept of Pre-emptive multitasking scheduling algorithm of RTOS with suitable diagram.
4. State the methods of Task synchronization. Describe Semaphore with suitable example.
5. Explain the concept of deadlock with suitable example. Describe any three methods each to detect and prevent deadlock.
6. With the help of neat diagram describe binary semaphore.
7. Explain the following a) watchdog timer b) multitasking
8. With the help of neat diagram describe mutex semaphore.
9. Describe any four characteristics of RTOS.