Total No. of Questions : 8]

SEAT No. :

P3375

[Total No. of Pages : 2

[5253] - 525
T.E. (E & TC) (Semester - I)
MICROCONTROLLER
(2015 Pattern)

Time :2½ hours] *[Max. Marks :70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary***

Q1) a) Draw and explain the flag structure of 8051 with bank 2 selection. **[6]**

b) Draw an interfacing diagram of LED connected to port 2 and write an ALP to generate ring counter with highest delay generated using mode 0. **[7]**

c) Draw an interfacing diagram of DAC and write an ALP to generate triangular wave continuously. **[7]**

OR

Q2) a) Draw and explain the Interrupt structure of 8051 with vector address **[6]**

b) Write short note on hardware debugging tools **[7]**

c) Draw the functional diagram of DAS for display of the count from external source on LED and LCD according to the condition: when switch S1 is pressed count should be displayed on LED and when S2 on LCD, Make the provision when Count reaches to FF, ring the buzzer connected with opto-isolater and Lamp the bulb connected with relay. Draw flowchart.**[7]**

Q3) a) Draw and explain functional diagram of Timer 0 of PIC. Also differentiate between operating functions of timer 0, 1 and 2 of PIC **[8]**

b) Draw and explain the data memory organization of PIC 18FXXX with concept of bank selection. **[8]**

OR

Q4) a) State features of PIC, draw and explain the block schematic of PIC 18FXXX. **[8]**

b) Draw and explain the RESET functional diagram with causes. **[8]**

P.T.O.

Q5) a) Draw an interfacing diagram of LCD 16×2 with PIC18FXXXX and write an embedded C program to display 'GST' on line one and 'INDIA' at 5th position on second line **[8]**

b) Draw and explain the capture mode of CCP module. **[8]**

OR

Q6) a) Write a program for 2.5 KHz and 75 % duty cycle PWM generation with N=4. **[8]**

b) Draw and explain the port structure of PIC with different registers used in Programming. **[8]**

Q7) a) Explain the SPI mode of MSSP structure used for serial communication. **[8]**

b) State features of RTC and draw an interfacing diagram with PIC 18FXXXX, write an initialization program. **[10]**

OR

Q8) a) Explain the use of PIC-ADC module to interface the Temp sensor LM35 used for accepting the Temp and display on LED connected to port D, write an embedded C program. **[8]**

b) Design a PIC test board test board using LED, keypad, buzzer and relay connected to ports with control using keys and write a C program for testing with S1 pressed LED ON and S2 pressed relay and buzzer ON.**[10]**