Total No. of Questions : 8]

SEAT No. :

P3363

[Total No. of Pages : 2

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TE. (E & TC) (Semester - I)

MICROCONTROLLER

(2015 Pattern)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 and Q.7 or Q.8.***
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 internal memory organization of 8051 in detail **[6]**

b) Draw an interfacing diagram of ADC 0809 with 8051 and write an ALP to accept data from sensor connected to channel 5 and store current reading in register B. **[7]**

c) Draw an interfacing diagram of DAC to generate the square wave of 5KHz (Use Timerl, mode 2) **[7]**

OR

Q2) a) Draw and explain port structure of 8051 microcontroller **[6]**

b) With the help of neat block diagram explain the operation of Logic analyzer **[7]**

c) Design a DAS for accepting digital input from 4×4 keypad and display the state of key pressed by glowing lamp connected with Opto-Isolator and LED connected to relay at P1.1, Draw flow chart. **[7]**

Q3) a) State features of PIC and explain with example functioning of ALU in PIC18 for transfer of data **[8]**

b) Explain the power down modes of PlC **[8]**

P.T.O.

OR

Q4) a) Draw and explain the RESET functional diagram with causes **[8]**

b) Write a C18 program to toggle all bits of Port B continuously with delay of 10 ms using Timer 0, 16 bit and no presclar XTAL=l0 MHz **[8]**

Q5) a) Draw and explain the Legacy and Priority mode of PlC interrupts **[8]**

b) Draw an interfacing diagram to interface the DC motor with PIC 18FXXX for speed control using PWM with 5KHz, 40% Duty cycle,N=4, Also write an embedded C program **[8]**

OR

Q6) a) Draw interfacing diagram of LCD with PIC 18FXXXX, and write an C program to display 'SPPU on first line with offset of 6 **[8]**

b) Explain in detail with block schematic of Compare mode of CCP module. **[8]**

Q7) a) Draw and explain the 12C mode of the MSSP structure in detail **[8]**

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

OR

Q8) a) Explain the use of BRG register for calculation of baud rate with UART block diagram **[8]**

b) Design a Home alarm system considering the parameters of door safety using sensors for detection of person and its movements, Display warning on LCD and LED, light the Lamp connected with Opto-oscillator, Draw the Flowchart with initialization program **[10]**