

Total No. of Questions : 8]

SEAT No. :

P3363

[Total No. of Pages : 2

[5353] - 554

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 Timer1, 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 PIC [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 prescaler XTAL=10 MHz [8]

- Q5)** a) Draw and explain the Legacy and Priority mode of PIC 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 PIC, 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]

