

Total No. of Questions : 8]

SEAT No. :

P2955

[Total No. of Pages : 2

[5669]-544

T.E. (E & TC)

MICROCONTROLLERS

(2015 Pattern) (Semester - I)

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) Assume Suitable data if necessary.
- 5) Use of Calculator is allowed.

- Q1)** a) Explain IE and IP register of 8051 with their priorities. [6]  
b) Interface 8 bit LCD with 8051 to display SPPU on first line and PUNE on second line. [8]  
c) Explain Memory organization of 8051. [6]

OR

- Q2)** a) Explain instruction ADD, ANL and DJNZ. [6]  
b) Explain interface of DAC with 8051. Write a program to generate triangular wave. [8]  
c) Write short note on IDE and Logic Analyser. [6]

- Q3)** a) Explain the data memory organization of PIC, comment on bank select register and access banks. [8]  
b) State different power management modes and explain idle and sleep mode. [8]

OR

- Q4)** a) Explain RESET operation of PIC18F458 in detail. [8]  
b) What are the various oscillator options? How can it be selected using Config register. [8]

P.T.O.

**Q5) a)** Explain the concept of PWM used in PIC 18F458 controller with example. [9]

b) Explain different ports of PIC 18Fxx microcontroller along with SFR. [9]

OR

**Q6) a)** Interface 4X4 Keypad to PIC 18Fxx controller and explain. Write embedded C program to display key press? [9]

b) State the programming steps for generation of time delay using Timer. [9]

**Q7) a)** Draw and explain MSSP structure of PIC18F458. [8]

b) Explain RS-232 and RS-485 Protocol in details. [8]

OR

**Q8) a)** Explain I<sub>2</sub>C Protocol in details and compare I<sub>2</sub>C, RS-232 and RS-485 protocols. [8]

b) Explain the step wise procedure and design methodology of PIC test board. [8]

