

Total No. of Questions : 8]

SEAT No. :

PE-2571

[Total No. of Pages : 2

[6583]-101

T.E. (E&TC/E.C -A.C.T.)

MICROCONTROLLERS

(2019 Pattern) (Semester - V) (304184)

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, 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) State features of PIC. Compare the different families of PIC Microcontroller. [6]
- b) Draw and explain program memory organization of PIC18F4550. [6]
- c) Draw and explain flag register of PIC and also explain programming model of PIC18FXXXX. [6]

OR

- Q2) a) Draw and explain data memory organization and stack of PIC18F4550. [6]
- b) Draw and explain the RESET functional diagram. [6]
- c) List the various oscillator options. How to select it using configuration register? [6]

- Q3) a) Write a program for 2.5kHz and 75% duty cycle PWM generation with N=4. [9]
- b) Write an embedded C program for reading single analog input range from 0V to 5V and display it on LCD. [8]

OR

- Q4) a) Write a C program to toggle all bits of PORT B continuously with delay of 5 ms using timer 0, 16 bit and no prescaler XTAL=10MHz. [9]
- b) Explain the capture and PWM mode of PIC18F4550 in detail. [8]

P.T.O.

- Q5)** a) Draw the interfacing of LCD with any port with PIC18F4550. Write C code to display "Gudhi-Padhwa". [6]
- b) Draw and explain interfacing of 3×3 matrix keypad with PIC. Draw the flowchart for it. [6]
- c) Design step by step and explain a PIC test board. [6]

OR

- Q6)** a) Draw the interfacing of LCD with PIC18F4550. Write C code to display "SPPU" on first line. [6]
- b) Interface LEDs to PIC18F4550 and write C program to flash LEDs after 1sec. [6]
- c) Draw an interfacing diagram of motion detector with PIC18F4550 and write code for it. [6]
- Q7)** a) State features of RTC and draw an interfacing diagram to interface it with PIC. Write an initialization program. [9]
- b) State features of SPI and I2C protocols. Compare RS232 and RS485. [8]

OR

- Q8)** a) Design a traffic light controller system. [9]
- b) Explain the I2C mode of MSSP structure and SPI mode of MSSP structure used for serial communication. [8]

