

Total No. of Questions : 8]

SEAT No. :

**PB-3833**

[Total No. of Pages : 2

**[6262]-95**  
**T.E. (E & TC)**  
**MICROCONTROLLERS**  
**(2019 Pattern) (Semester - I) (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 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)** Compare PIC10, PIC 12, PIC 16 and PIC 18. **[8]**

b) Draw and explain program memory organization of PIC 18F4550. **[8]**

OR

**Q2) a)** Draw and explain the data memory organization of PIC 18F4550. **[8]**

b) Draw and explain the architecture of PIC 18F4550. **[8]**

**Q3) a)** Explain capture mode of PIC microcontroller, discuss the role of PIR register in capture mode. **[9]**

b) Explain the operation of T0CON and T1CON register of PIC 18F4550. **[9]**

OR

**Q4) a)** Write an embedded c program to generate square wave of 1KHz with the duty cycle of 25% and prescale 1:16 **[10]**

b) Draw and explain the interrupt structure in priority mode of PIC microcontroller. **[8]**

**P.T.O**

**Q5) a)** Draw and explain an interfacing of switch, relay and buzzer with PIC microcontroller. Write the pseudocode to turn relay ON and Buzzer OFF when switch 1 is pressed and turn relay OFF and Buzzer ON when switch 2 is pressed. [9]

b) Draw an interfacing diagram of 4\*4 keyboard matrix, write pseudocode to display keycode of key pressed. [9]

OR

**Q6) a)** Draw an interfacing diagram of ultrasonic sensor with PIC 18F, write embedded c code to identify the object. [9]

b) Draw an interfacing of 8 bit LCD with PIC 18F4550 display message "E&TC Dept" . [9]

**Q7) a)** Compare SPI, RS232 and I2C protocol. [9]

b) Explain MSSP SPI mode of PIC18F4550. [9]

OR

**Q8) a)** What is BRGH register? Explain how to calculate baud rate in USART. [8]

b) Draw an interfacing diagram of EEPROM with PIC 18F4550 write pseudocode to write the contents in EEPROM. [10]

