

Total No. of Questions : 8]

SEAT No. :

PD4296

[Total No. of Pages : 2

[6403]-94

T.E. (E&TC)

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) Draw and explain the block schematic of PIC18F4550 MCU unit. [6]
b) Explain functions of ALU in PIC18F4550 with example. [6]
c) Explain the criteria for choosing PIC18F184550 Microcontroller. [6]

OR

- Q2)** a) State features of PIC18F4550. [6]
b) Explain PSW of PIC18F4550. [6]
c) Draw and explain the data memory organization of PIC18F4550. [6]

- Q3)** a) Draw and explain the Timer 0, 8bit operation of PIC18F4550 compare the Timer 0,1, and 2. [9]
b) Write a program for 2.5 KHz and 50 % duty cycle PWM generation with N=4. fosc=10MHz. [8]

OR

- Q4)** a) Write program to generate delay of 10 ms using timer1, 16 bit and no prescaler. [9]
b) Explain in details capture mode of PIC18F4550. [8]

- Q5)** a) Explain step wise procedure and design methodology of PIC18F4550 test board. [6]
b) Draw an interfacing diagram of LCD with PIC18F4550 and explain function of RS and EN. [6]
c) Draw port structure of PIC18F4550 with SFRs used in programming. [6]

OR

P.T.O.

Q6) a) Draw an interfacing diagram of LEDs connected to port B of PIC 18F4550 and write an embedded C program for BCD counter.[6]

b) Draw an interfacing diagram of 4×4 matrix keyboard and explain the concept of key detection. [6]

c) Draw an interfacing diagram of Home protection system with LED, Key, Motion Sensor, LCD, buzzer and relay connected to various port lines.[6]

Q7) a) State features of SPI bus and compare RS232 and RS 485. [9]

b) State features of EEPROM, draw an interfacing diagram with PIC18F4550. [8]

OR

Q8) a) State features of RTC, draw an interfacing diagram with PIC18F4550. Write initialization program. [9]

b) Draw and explain block diagram of UART receiver. [8]

