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[6180]-109
T.E. (E&TC)
MICROCONTROLLERS
(2019 Pattern) (Semester - I) (304184)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8.
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) Describe operation of PIC18F4550 microcontroller with block diagram. **[6]**

b) Draw and explain program memory organization of PIC18F4550. **[6]**

c) Explain the POR and BOD modes of reset in PIC18F4550. **[6]**

OR

Q2) a) Draw and explain the concept of data memory organization in PIC18F4550 **[6]**

b) State features of PIC18F4550 Microcontroller. **[6]**

c) Explain the flag structure (PSW) of PIC18F4550 in detail. **[6]**

Q3) a) Explain the timer 2 with block schematic, compare Timer 0,1 and 2. **[9]**

b) Describe the block schematic of compare mode of operation with applications in PIC18F4550 **[8]**

OR

Q4) a) State features of ADC, Draw and explain block schematic of ADC in details with function of Control registers in PIC18F4550. **[9]**

b) Write a program for 2.5 KHz and 75 % duty cycle PWM generation with N = 4, use Fosc = 10MHz. **[8]**

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Q5) a) Draw port structure of PIC18F4550 and comment on SFRs used in Programming. **[6]**

b) Draw an interfacing diagram of LED with PIC18F4550 using port D and write program to display ring counter. **[6]**

c) Draw an interfacing diagram of Home protection system with LED, Key, Motion Sensor, LCD ,buzzer and relay connected to various port lines of PIC18F4550. **[6]**

OR

Q6) a) Draw an interfacing diagram of 4×4 keypad and write.short program for checking key is closed or open. **[6]**

b) State specifications of LCD and draw an interfacing diagram with PIC18F4550. **[6]**

c) Explain step wise procedure and design methodology of PIC18F4550 test board. **[6]**

Q7) a) Explain the use of BRGH register for calculation of baud rate with UART transmitter block diagram. **[9]**

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

OR

Q8) a) State features of Rs232, explain with diagram I2C mode of MSSP structure in PIC18F4550 **[9]**

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

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