Total No. of Questions : 8]

SEAT No. :

PF-4959

[Total No. of Pages : 2

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T.E. (E&TC/E.C-ACT/E.Eng.-VLSI D&T)

MICROCONTROLLERS

(2019 Pattern) (Semester - V) (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 the functional operation of PIC18F4550 microcontroller with block diagram. **[6]**

b) Explain function of RESET with schematic. **[6]**

c) Explain the power down modes of PIC18F4550. **[6]**

OR

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

b) State features of PIC18F Microcontroller with comment on oscillator. **[6]**

c) Explain the flag structure (PSW) of PIC18Fxxxx in detail. **[6]**

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

b) Draw and explain the interrupt structure of PIC18Fxxx with reasons of causing interrupts. **[8]**

OR

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Q4) a) Draw an interfacing diagram of DC motor with PIC18F4550 and write program for Speed Control. **[9]**

b) Explain the compare mode of operation with applications in PIC18F4550. **[8]**

Q5) a) State specification of IR Sensor and draw an interfacing diagram with PIC18F4550. **[6]**

b) Write program for flashing the LED connected to port D, draw an interfacing diagram with PIC18Fxxxx. **[6]**

c) Design a Home Protection system considering the parameters of door safety using sensors for detection of person and its movements, display warning on LCD. **[6]**

OR

Q6) a) State specification of proximity sensor (Motion detector) and draw an interfacing diagram with PIC18Fxxx. **[6]**

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

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

Q7) a) Explain the use of BRG 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) Compare the Serial and Parallel modes of communication, explain RS232 protocol. **[9]**

b) Design Traffic Light Controller using PIC18F4550. **[8]**

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