

Total No. of Questions : 8]

SEAT No. :

P2964

[Total No. of Pages : 2

[5669]-554

T.E. (Electronics Engineering)
MICROCONTROLLERS AND APPLICATIONS
(2015 Pattern) (Semester - I)

Time : 2.30 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8.
- 2) Figures to right indicate full marks
- 3) Assume suitable data, if necessary.

- Q1)** a) Compare RISC and CISC processor. [4]
b) Draw and explain the block diagram of Logic analyzer. How it is different from CRO? [8]
c) What is Data Acquisition system? Draw and explain data Acquisition system using 8051 microcontroller. [8]

OR

- Q2)** a) Interface relay with 8051 microcontroller. Write an assembly language program to ON and OFF relay with a delay of 1 second. [4]
b) Draw interfacing diagram of 16×2 LCD in 4 bit mode with 8051 microcontroller. Explain the functions of control signals of LCD such as RS, R/W and Enable. Compare 4 bit and 8 bit mode of LCD. [8]
c) Explain following instructions of 8051 microcontroller. [8]
i) CJNE A, #01H, LOOP1
ii) RRA
iii) DJNZ R1, BACK
iv) MOVXA, @DPTR

- Q3)** a) Explain the following with respect to PIC 18FXXX microcontroller. [8]
i) Watch dog timer
ii) Power down mode
b) List the features of PIC 18FXXX microcontroller. Explain the different registers of PIC 18FXXX microcontroller. [8]

P.T.O.

OR

- Q4)** a) Explain the function of program counter in PIC 18FXXX microcontroller. What is the width of program counter in PIC 18FXXX microcontroller? How much program memory can be interfaced with PIC 18FXXX microcontroller? Explain program memory organization in PIC 18FXXX microcontroller. [8]
- b) Explain the following instructions of PIC 18FXXX microcontroller. [8]
- ANDLW 0×11
 - MULW 0×22
 - ADDLW 0×01
 - RETFIE

- Q5)** a) Interface 16×2 LCD in 4 bit mode with PIC18FXXX. Write an embedded C program to display message "INDIA" on LCD. [8]
- b) Explain Timer 0 of PIC18FXXX microcontroller in 4 bit and 8 bit mode. [8]

OR

- Q6)** a) With the help of neat diagram explain how speed of dc motor can be controlled by using CCP of PIC18FXXX microcontroller. [8]
- b) Explain in brief I/O ports of 18FXXX microcontroller. Explain the function of TRISx and LATx registers of I/O Port of PIC18FXXX microcontroller. [8]

- Q7)** a) Explain MSSP structure with SPI mode in PIC 18FXXX microcontroller. [8]
- b) What is RS 232 protocol? Explain different signals used for serial communications in RS232 protocol. State limitations of RS 232 protocol. Compare RS232 and RS 485. [10]

OR

- Q8)** a) Interface RTC DS1306 using I2c with PIC18FXXX microcontroller. Draw and explain the flowchart to display time and date. [8]
- b) What is I2C protocol? Explain different signals used in I2c Protocol. Explain how start and stop conditions are generated in I2C. Explain how data communication takes place in I2C. How I2C is different than the SPI. [10]

