Total No. of Questions : 12]

SEAT No. :

P1628

[Total No. of Pages : 2

[5058]-74
T.E. (Electronics Engineering)
MICROCONTROLLERS
(2008 Course) (Semester - I) (304204)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Answer any three questions from each section.***
3) ***Neat diagrams must be drawn wherever necessasry.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of Calculator is allowed.***
6) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) Explain architectures of 8051 microcontroller. **[10]**

b) Compare 8051, 8052 and 8031 Microcontroller. **[6]**

OR

Q2) a) Explain architecture of 8 bit microprocessor. **[10]**

b) Compare Harvard and Von Neumann Architecture. **[6]**

Q3) a) Draw & explain the Internal RAM organization of 8051 microcontroller. **[8]**

b) Assuming that ROM space starting at 250H Contain "University". write a program to transfer the bytes in to RAM location at 40H. **[8]**

OR

Q4) a) Draw and Explain the PSW Register and give the application difference between Carry and Overflow flag. **[6]**

b) Explain the following instructions: **[10]**

i) MOVC A, @ A+DPTR

ii) XCH A, Byte

iii) XCHD A,@Ri

iv) SWAP A

v) SUBB A, R0

P.T.O.

Q5) a) Write a program to generate a pulse train of 2 second period on pin P2.4. Use timer 1 in mode 1 and assume XTAL = 22MHz **[8]**

b) Draw an interfacing diagram of 16X2 LCD with 8051 microcontroller. Write an Assembly language program to displaying "INDIA" on first line first position. **[10]**

OR

Q6) a) Draw an interfacing diagram of DAC 0808 with 8051 microcontroller and write an ALP for generating SAW TOOTH wave continuously. **[9]**

b) Draw an interfacing diagram of 4X4 keypad to 8051 microcontroller and explain the help of flowchart how the scanning the key is performed by microcontroller. **[9]**

SECTION - II

Q7) a) Explain CAN bus in detail. **[9]**

b) Write a program for 8051 to transfer letter "B" serially at 9600 baud rate, continuously. Also explain SCON register. **[9]**

OR

Q8) a) Explain RS232 standard. Why MAX 232 is required in serial communication. **[9]**

b) Explain I2C communication protocol with timing diagram. **[9]**

Q9) a) Explain architecture of PIC 18FXX with suitable block diagram. **[10]**

b) Draw an interface diagram of LED with PORT B of PIC 18FXX and an embedded C program for flashing of LED. **[6]**

OR

Q10)a) Explain the architecture of ATMEGA 32. **[10]**

b) Draw and explain the working register (W) of PIC 18FXX with suitable example. **[6]**

Q11)Explain the Data acquisition system. What are the design consideration of DAS explain with suitable block diagram. **[16]**

OR

Q12)a) Design microcontroller based path follower. **[12]**

b) Explain the working principle of DC Motor. **[4]**