Total No. of Questions : 12]

SEAT No. :

P2327

[Total No. of Pages : 3

[4758]-62

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 necessary.***
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 architecture of 8 bit microprocessor. **[10]**

b) Compare microprocessor and microcontroller. **[6]**

OR

Q2) a) Explain architectures of 8051 microcontroller. **[10]**

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

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

b) Write a program to find smallest number in an array of seven numbers (stored in internal RAM location 40H onwards) and store result at 50H. **[8]**

OR

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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) CALL

ii) SJMP

iii) MOVC

iv) CJNE

v) ANL

Q5) a) Assume that ROM Space starting at 250H contain "PUNE", write an ALP of 8051 to transfer the byte into RAM location starting at 40H. **[8]**

b) Draw an interfacing diagram of 16X2 LCD with 8051 microcontroller. Write an Assembly language program to displaying "Pune" 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 Sine Waveform. **[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 I2C communication protocol with timing diagram. **[9]**

b) Write a program for 8051 to transfer letter "A" 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 CAN bus in detail. **[9]**

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

b) Explain the pipelining in PIC 18FXX microcontroller. **[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 typical characteristics of thermister temperature sensor. **[4]**

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