Total No. of Questions : 12]

SEAT No. :

P2920

[Total No. of Pages : 2

[4958]-154
T.E.(Electronics Engineering)
MICROCONTROLLERS
(2008 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Answers 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 the 8051 microcontroller architecture with suitable diagram. **[10]**

b) Compare Harvard and Van-Neumann architecture **[6]**

OR

Q2) a) Draw and explain architecture of 8 bit of microprocessor. **[10]**

b) Explain various selection criteria of microcontroller. **[6]**

Q3) a) Explain the addressing modes of 8051 Microcontroller. **[8]**

b) Explain the following instructions with suitable example. **[8]**

i) MOVX A,@DPTR ii) XCH A, Rn

iii) ANL A, Rn iv) ADD A,Rn

OR

Q4) a) Assume that ROM space starting at 250H contains "SPPU", write an assembly language programme of 8051 to transfer the byte into RAM location starting at 40H. **[8]**

b) Explain the internal structure of port 1of 8051 microcontroller **[8]**

Q5) a) Draw an interfacing diagram for 4×4 keyboard with 8051 microcontroller.With the help of flowchart explain how the scanning of key is performed by microcontroller? **[9]**

b) Explain with diagram interfacing of LCD with 8051. **[9]**

OR

P.T.O.

Q6) a) Explain the interrupt structure in 8051 **[9]**

b) Draw an interfacing diagram for LCD with 8051 microcontroller and write an assembly language program for displaying 'PUNE on 1st line initial position. **[9]**

SECTION-II

Q7) a) Explain I2C communication protocol with timing diagram **[9]**

b) Compare RS485 vs RS232.why MAX232 chip is required in serial communication? **[9]**

OR

Q8) a) What is CAN bus protocol? And explain Message frame formats of CAN Protocol. **[9]**

b) Explain SPI bus in detail. **[9]**

Q9) a) Draw an interfacing diagram of LED with PORT B of PIC 18Fxx and write an embedded C programme for flashing of LED. **[8]**

b) Explain addressing modes of PIC 16FXX Microcontroller **[8]**

OR

Q10) a) Explain in detail program memory and data memory of PIC 18F Microcontroller. **[8]**

b) Explain features of AVR microcontroller series. **[8]**

Q11) a) Explain in brief various steps involved in designing of data acquisition system. **[12]**

b) Explain typical characteristics of RTD **[4]**

OR

Q12) a) Explain the working of stepper motor. Draw an hardware interfacing of stepper motor with 8051 microcontroller using L293D for driving a stepper motor and then write ALP to run the stepper motor in any one direction at alternately slower and faster speeds. **[12]**

b) Explain typical characteristics of thermocouple **[4]**

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