Total No. of Questions : 12]

SEAT No. :

P1393

[Total No. of Pages : 3

[4858] - 154

T.E. (Electronics Engineering)

Microcontrollers

(2008 Pattern) (Semester - I)

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 architectures of 8051 microcontroller. **[10]**

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

OR

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

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

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

b) What is addressing mode? What are types of addressing mode? explain any three addressing modes of 8051 microcontroller. **[8]**

OR

P.T.O.

Q4) a) Draw and Explain the PSW Register of 8051 microcontroller. **[6]**

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

i) SUBB A, Rn

ii) MOVX @ Ri, A

iii) CJNE A, direct, rel

iv) XCH A, Direct

v) ANL A, Rn

Q5) a) Assume that ROM Space starting at 200H Contain "PUNE", write an ALP of 8051 to transfer the byte in to RAM location starting at 50 H. **[8]**

b) Draw an interfacing diagram of 16 × 2 LCD with 8051 microcontroller. Write an Assembly language program to displaying " UNIVERSITY". **[10]**

OR

Q6) a) Draw and Explain ADC 0804 chip **[9]**

b) Draw an interfacing diagram of 4 × 4 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 12C communication protocol with timing diagram. **[9]**

b) Write a program for 8051 to transfer "SPPU" 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 the SPI Protocol in detail. **[9]**

Q9) a) Explain the architecture of ATMEGA 32. **[10]**

b) Draw an interfacing diagram of LED with PORTB of PIC 18FXXX and write an embedded C program for flashing of LED. **[6]**

OR

Q10) a) Explain architecture of PIC 18FXX with suitable block diagram. **[10]**

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

Q11) Draw the block diagram of the Data acquisition system and explain in brief the following : **[16]**

a) selection of sensor.

b) Design of signal conditioning

c) Selection of ADC

d) Selection of Microcontroller

OR

Q12) a) Explain the typical characteristic of following: **[10]**

i) Thermocouple ii) RTDS
iii) Thermistor iv) IC Temperature

b) Explain the working principle of stepper motor. **[6]**

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