

Total No. of Questions : 12]

SEAT No. :

P1073

[4659]-136

[Total No. of Pages : 3

B.E. (Production)

d - MICROPROCESSOR APPLICATIONS

(2008 Course) (Elective - I) (Semester - I) (411084)

Time : 3Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from Section I and Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from Section II.*
- 2) *Answer to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data, whenever necessary.*

SECTION-I

- Q1)** a) With the help of block diagram, explain the microcontroller architecture. What are the essential blocks of microcontrollers? [8]
- b) Compare microprocessors and microcontrollers. [8]

OR

- Q2)** a) Differentiate the following: [8]
- i) Harvard and Von Neumann architecture
 - ii) RISC and CISC processors.
- b) What are the application areas of microprocessors and microcontrollers? [8]

- Q3)** a) What are the different phases of instruction execution? Explain the use of address bus, data bus while instruction fetch. [8]
- b) Draw schematic diagram for interfacing EPROM and RAM to 8085. Explain briefly. [8]

OR

- Q4)** a) What is the use of interrupts? Explain Hardware and Software interrupts. [8]
- b) What are different methods of I/O device interfacing? Differentiate between polling and interrupt based interfacing. [8]

P.T.O.

- Q5)** a) With the help of block diagram, explain architecture of 8051. [10]
b) Explain port structure of 8051. [8]

OR

- Q6)** a) With memory map explain internal memory organization of 8051. How external memory can be interfaced? [10]
b) What are the different modes of timers? Which SFRs are used for timer? [8]

SECTION-II

- Q7)** a) Explain different addressing modes with the help of example of one instructions explain each mode. [8]
b) Explain following instructions of 8051. [8]
i) DJNZ ii) SJMP iii) ADC iv) ANL

OR

- Q8)** a) What are the different type of Jump & call instructions. Illustrate with examples. [8]
b) Write a program to add 16 bit numbers & store the result in memory locations 40H onwards. [8]
- Q9)** a) Define PLC and state features of PLC. How PLC can be used in CNC?[8]
b) Interface 2 line, 16 character LCD display to 8051. Explain interface signals. Write assembly language program to display 'WELCOME'. [8]

OR

- Q10)** a) Interface 8 bit DAC to 8051 and write a program to generate staircase waveform. [8]
b) Interface stepper motor to 8051. Draw interfacing diagram. Write assembly program to rotate motor clockwise continuously. [8]

Q11) Design a system for Data acquisition using 8051 microcontroller for temperature, pressure and level measurement. Draw circuit diagram with suitable sensor and signal conditioning. Display the parameters on LCD. Write the algorithm. **[18]**

OR

Q12)a) Compare RS232 and RS485 protocol. **[8]**

b) Explain USB bus with suitable applications. **[10]**

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