M.E. First Semester (Electrical (Electrical Power System)) (F.T.)

13301 : Microprocessor & Microcontroller : 1 SEPS 3

P. Pages : 2 | AU - 3258

Time : Three Hours | Max. Marks : 80

Notes : 1. Answer **two** question from Section A and **two** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.

SECTION – A

1. a) Explain the use of hidden registers in Intel 8085, by illustrating examples. **4**

b) Given an array A (I) of 100, 16 bit signed numbers stored in memory starting at address $(A000)_{16}$. Write a program to generate two arrays from the given array such that one array P(J) consists of all the positive numbers and the other N(k) contains all the negative numbers. Store the array of positive numbers in memory starting at offset address B000H and the array of negative numbers starting at offset address C000H. Also specify the range of +ve and -ve signed numbers with respect to overflow flag of 8086. **16**

2. a) Explain the followings: **4+6=10**

i) Compiler with its phases of operation

ii) Loader with its loading schemes.

b) Write a program to exchange the contents of AX with BX without using XCHG and MOV Instructions. **6**

c) Locate address of INT50 in the IVT, which gives an address of ISS. **4**

3. a) Explain various string instructions available in 8086. Write equivalent instruction sequences using string instructions for each of the following: **7**

a)
```
MOV AL, [SI]
MOV [DI], AL
INC SI
INC DI
```

b)
```
MOV AX, [SI]
INC SI
INC DI
```

b) Write an instruction sequence to set all the flags of 8086 without using any arithmetic or Logical operation. **5**

c) Explain I/O Bus cycles and all types of I/O instructions available in 8086. **8**

SECTION – B

4. a) Explain LIFO or FILO type of structure in memory with its instructions of 8051. **5**

   b) Interface 8KB of external RAM with 8051μc . use suitable addresses for your scheme. write a program to read 100 Bytes of data from part 1 and save that data in external RAM. **10**

   c) Explain bit manipulation instructions of 8051. **5**

5. a) Assume that internal RAM Locations 40H-44H contains the daily temperature for five days. Search to see if any of the value equals to 65. If the value 65 does exist in the table, give its location to R4, otherwise (R4) = 00H. **7**

   b) Draw a neat hardware to interface DAC 0808 with 8051μc . Write an ALP to generate the following waveform continuously. Assume suitable addresses. **13**

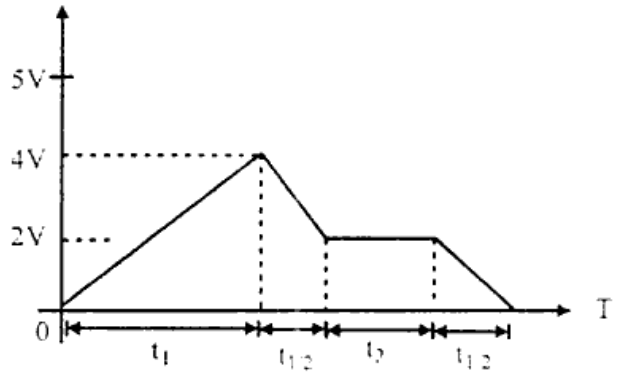

Figure : Q. 5 (b)

6. a) Write an ALP to control the electric oven using microcontroller with ADC 0808/0809. Assume threshold value as 75°C. Interface electric over with pin P1.5. Draw suitable diagram. **10**

   b) What are the different types of interrupts in 8051? Write a steps for executing an interrupts & also draw & explain SFR'S related to interrupts of 8051. **10**

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