B.E.(with Credits)-Regular-Semester 2012-Electrical Engineering & (E. & P.) Sem. V

EP502 - Microprocessors and Microcontroller

P. Pages : 2 **GUG/W/16/3721**

Time : Three Hours * 3 9 6 2 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Due credit will be given to neatness.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. Use of slide rule, Drawing instruments and non programmable calculator is permitted.
6. All questions are compulsory. However the students may avail internal choice.

1. a) Draw the Architectural diagram of 8085 A μp. **10**

b) Explain Flag structure of 8085μp. **6**

OR

2. a) Draw the timing diagram of MOV B, M instruction. **6**

b) Explain what do you understand by Fetch, decode and execute operation. **6**

c) Specify the number of T – states and machine cycles required for the following instructions : **4**

i) XCHG ii) DADB

iii) PUSH PSW iv) RET

3. a) What the following instructions do in 8085? **4**

i) XTHL ii) RST 1

iii) RAL iv) JN 2 6060 H

b) State similarities and difference between CALL & RET Vs. PUSH & POP instructions. **6**

c) Find the 2's compliment of 16 bit number present in HL pair. Store the result in 6050 H and 6051 H memory locations. **6**

OR

4. a) Write a subroutine to create a delay of 5 milisecond. Also calculate the value of COUNT required for the above delay time. **8**

b) Specify the contents of registers and flag status as the following instructions are executed. **4**

```
MVI A, 00 H
MVI B, F 8 H
MOV C, A
MOV D, B
ADD  D
HLT
```

c) Specify and explain the addressing modes belong to each of the following instructions. **4**

i) STA 2400 H ii) RLC

iii) ANI 42 H iv) ADD H

5. a) Explain what do you mean by absolute decoding and linear decoding? What are the advantages and disadvantages? **6**

b) Interface $4K \times 8$ RAM and $4K \times 8$ ROM with $8085 \mu p$. Assume suitable address. **10**

OR

6. a) Explain the various interrupts of $8085 \mu p$. Give priority of those interrupts. **6**

b) Explain RIM instruction. **4**

c) Write a program to generate square wave with a period of 400 μsec. Using SOD pin of μp having 2 MHz clock frequency. **6**

7. a) Draw and explain the architecture of 8255 PPI. **8**

b) What is meant by DAC and ADC? Why it is necessary to use DAC and ADC in microprocessor based industrial products? **8**

OR

8. a) Discuss a microprocessor based scheme to measure and display frequency. **8**

b) Connect one 7 segment display with μp 8085 and write an ALP to display decimal digits from 0 to 9 for 1 sec. each. Repeat the process continuously. **8**

9. a) Draw and explain block diagram of 8051. **8**

b) Draw and explain memory organisation of 8051. **8**

OR

10. a) Explain addressing modes of 8051. **8**

b) Define interrupt and explain types of interrupts in 8051. **8**

****