B.E.(with Credits)-Regular-Semester 2012-Information Technology Sem V

# IT501 - Microprocessors and Microcontroller

P. Pages : 2 **GUG/W/16/3775**

Time : Three Hours * 3 9 7 5 * Max. Marks : 80

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Notes : 1. Same answer book must be used for all questions.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Diagrams and Chemical equation should be given wherever necessary.
6. Illustrate your answers wherever necessary with the help of neat sketches.

**1.** a) Explain the architecture of 8086 with suitable block diagram. Explain the function of each block. **10**

b) Name different addressing modes in 8086 and explain any two with suitable instructions. **6**

**OR**

**2.** a) Explain the following function of each pin of 8086 : **8**

i) $\overline{TEST}$ ii) $DT/\overline{R}$

iii) $MN/\overline{MX}$ iv) $\overline{DEN}$

b) Write an assembly language program for finding average of the three numbers which are stored in three consecutive memory locations. **8**

**3.** a) Write a detail note on software interrupts also explain its address calculation for ISR for INT2 and INT3. Also write for what operations these two interrupts are used. **8**

b) What are markable and non markable interrupts and what are interrupts priorities. What do you mean by user defined interrupts. **5**

c) Write the difference between software and hardware interrupts. **3**

**OR**

**4.** a) Discuss flag register of 8086 with suitable format. **6**

b) Explain following instructions. **10**

i) DAA ii) CMP CX, AX

iii) INC iv) MUL BL

v) IDIV CH

**5.** a) Design a memory system for 8086 microprocessor system in minimum mode configuration using. **12**

64 K EPROM using 32 K x 8 IC
32 K RAM using 16 K x 8 IC.

b) Discuss even and odd memory and its addressing. **4**

**OR**

**6.** a) Discuss in detail about the 8254 programmable interval time with its features, block diagram, function of each block and its control word. **12**

b) Discuss mode 0 operation of 8254. **4**

**7.** a) What are the features of 8255 and discuss working of 8255 in mode 0 and mode 1 operation. **8**

b) Write a detail note on 8259 programmable interrupt controller. **8**

**OR**

**8.** a) Discuss the architecture of 8051. **8**

b) Discuss the function of each pin of 8051. **8**

**9.** a) Write a detail note on organization of internal RAM of 8051. **6**

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

i) MOV A, # 50H
ii) MOV B, # 50
iii) MOV @ $R_1$, A
iv) MOV 50H, $R_3$
v) SUBB
vi) X RL A, $R_4$.

**OR**

**10.** a) Discuss different flag of 8051. **5**

b) What are different addressing modes used in 8051. **5**

c) Write a program for multiplication of two numbers stored in two memory locations 50H and 60H and store the result in 65H. **6**

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