B. E.(with Credits)-Regular-Semester 2012-Electronics Engineering Sem. V

EN504 Advanced Microprocessors and Interfacing

P. Pages : 4

Time : Three Hours Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain in detail the Flag Register of microprocessor 8086. **8**

b) Explain the Register organization of μp 8086. **8**

OR

2. a) Explain minimum mode of operation of μp 8086. **8**

b) Explain the function of following pins of 8086. **8**

i) $\overline{\text{LOCK}}$ ii) $\overline{\text{RQ}}$ / $\overline{\text{GTo}}$

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

3. a) Explain the following instructions: **8**

i) STOSB / STOSW

ii) AAM

iii) ROR Byte Ptr [SI], CL

iv) IDN

b) Write an assembly language program to find a square of a number. **8**

OR

4. a) Draw and explain the interrupt structure of μp 8086 in detail. **8**

b) Connect following memory IC's with μp 8086: **8**

i) 32K word EPROM using 32K x 8 IC

ii) 32K word RAM using 32K x 8 IC

5. a) Interface one unit of seven segment display with μp 8086 and write a program to display Hex digits from O- F for 1 sec each. Use look up table. **8**

b) Interface 8 bit ADC with μp 8086 and write a program to input and store 10 samples of analog voltage. The sampling rate should be 1 sample /sec. Use 8255 PPI to interface ADC. **8**

OR

6. a) Draw and explain the block diagram of 8254 PIT. **8**

b) Explain mode 0 of 8254 PIT along with waveform. **8**

7. a) Draw and explain the architecture of 8259 PIC. **8**

b) Explain ICW's of 8259 PIC. **8**

OR

8. Explain the following related to 8279 : **16**

i) Scanned keyboard mode with 2 key Lockout.

ii) Scanned keyboard with N-Key Rollover.

iii) Scanned keyboard special Error mode.

iv) Sensor matrix mode.

9. a) Explain the complete block diagram of 8257 DMA controller. **8**

b) Write the sequence of instructions to initialize 8257 to transfer 16 K bytes from memory to channel 1 starting from address 9000H. **8**

OR

10. a) Explain working of transmitter and receiver section of 8251 USART. **8**

b) Explain following pin functions of 8251 USART : **8**

i) $\overline{DTR}$ ii) $\overline{DSR}$

iii) $\overline{RTS}$ iv) $C/\overline{D}$

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