TE- sem-VI (old) Electrical - up and EC
Microprocessor and Microcontroller 14/12/16

Q.P. Code : 583701

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question no **ONE** is **compulsory**
(2) Attempt any **FOUR** from the remaining **six** questions.
(3) Assume suitable data if required.
(4) Figure to the right indicates **full** marks.

1. (a) Differentiate 8 bit and 16 bit microprocessor. **5**
   (b) Explain control units of 8085 microprocessor. **5**
   (c) Explain memory banking in 8086 microprocessor. **5**
   (d) Explain assembler and assembler directives. **5**

2. (a) With respect to microprocessor, explain what is instruction cycle, machine cycle and T-state. Draw the timing diagram of op-code fetch machine cycle. **10**
   (b) Explain with the help of block diagram, the minimum mode operations of 8086 microprocessor. **10**

3. (a) Write a program to find the largest number in a set of 10 numbers for 8086 microprocessor. **10**
   (b) Explain the following with respect to 8086 Microprocessor. **10**
   (i) Pipelining
   (ii) M/$\overline{IO}$
   (iii) Indexed addressing mode

4. (a) Explain all bit oriented instructions of 8051 microprocessor. What is power down mode and sleep mode. **10**
   (b) Explain memory organization of 8051 microprocessor with the help of suitable diagram. **10**

5. (a) Write instructions to initialize 8255 PPI for mode 2 operation. Explain mode 2 operation of 8255 PPI. **10**
   (b) Write a program to generate square wave of time periods 1 msec with 50% duty cycle using 8254 interval timer and counter. **10**

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6. (a) Explain all bit oriented instructions of 8051 microcontroller. 10

(b) Explain the following terms related to microprocessor and microcontroller. 10

(i) Program counter
(ii) Sack and stack pointer
(iii) Subroutine
(iv) Ready and wait
(v) Reset

7. Write short note in any **two** 20

(i) Microcontroller based traffic signal control
(ii) Memory segmentation in 8086
(iii) DC motor control using microcontroller.
