Sixth Semester B.E. Degree Examination, Dec.2013/Jan.2014
Microprocessor

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. Explain the functions of the following units with reference to 8086 CPU:
   (i) Instruction Queue   (ii) Index Registers   (iii) Segment Registers   **(09 Marks)**
  b. Explain the generation of 20-bit physical address in case of based addressing with 16-bit displacement.   **(05 Marks)**
  c. List and explain the need of status and control flags in 8086.   **(06 Marks)**

2 a. Explain the significance of the following pins of 8086:
   (i) ALE   (ii) RESET   (iii) $\overline{\text{LOCK}}$ (iv) MN/$\overline{\text{MX}}$ **(06 Marks)**
  b. Differentiate the following instruction:
   (i) MOV AX, DS:35H and MOV AX, 35H
   (ii) AND and TEST
   (iii) Shift and Rotate   **(08 Marks)**
  c. Write an assembly language program to find the number of 1's and 0's for an 8-bit data.
       (06 Marks)

3 a. Explain the use of REP prefix for MOVS and STOS string instructions.   **(05 Marks)**
  b. Write an ALP to perform the following using string instructions:
   (i) Reverse a string   (ii) Check for a palindrome.   **(10 Marks)**
  c. Write the interrupt structure of 8086.   **(05 Marks)**

4 a. Bring out the differences between MACRO and PROCEDURE.   **(04 Marks)**
  b. Write an ALP to find the factorial of a number using a procedure.   **(10 Marks)**
  c. Explain the response of 8086 when NMI and INTR pins are activated.   **(06 Marks)**

PART – B

5 a. Explain the control word format of 8255 PPI.   **(05 Marks)**
  b. Interface a matrix keyboard to 8086 using 8255 and explain its operation.   **(10 Marks)**
  c. Write a short note on different types of key switches used in computers.   **(05 Marks)**

6 a. Illustrate the need for an arithmetic coprocessor in a microcomputer system.   **(05 Marks)**
  b. Explain the different data types of 8087 with examples.   **(10 Marks)**
  c. Explain the control Register format of 8087.   **(05 Marks)**

7 a. With a relevant block diagram, explain the maximum mode operation of 8086.   **(10 Marks)**
  b. Write an ALP to interface a stepper motor to 8086.   **(10 Marks)**

8   Write short notes on :
  a. Universal Serial Bus (USB)
  b. Peripheral Component Interconnect (PCI)
  c. Pentium Processor
  d. Special registers in 80386 CPU.   **(20 Marks)**

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