Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
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 architecture of 8086 microprocessor with a neat block diagram. **(10 Marks)**
   b. Define addressing modes of 8086 and identify the addressing modes of the following instructions: i) add ax, [si]   ii) mov al, [1000]   iii) mov [bx + si + 06], bl   iv) mov bx, [bp + 50] **(10 Marks)**

2 a. Discuss the functions of following instructions:
      i) xlat   ii) aam   iii) das   iv) imul bx
      v) lds bx, [1234h] **(10 Marks)**
   b. Write an ALP to multiply two-16 bit packed BCD numbers. **(06 Marks)**
   c. Define the following assembler directives:
      i) ALIGN   ii) EVEN   iii) ENDS   iv) LOCAL **(04 Marks)**

3 a. Describe the following string instructions :
      i) repe movsb   ii) cmpsb   iii) scasb   iv) lodsb **(08 Marks)**
   b. Write an ALP to scan for a character in a string and replace by another character. Use assembler directives. **(08 Marks)**
   c. Write a program to convert binary byte to ASCII equivalent. **(04 Marks)**

4 a. Define an interrupt. Explain 8086 interupts and response mechanism. **(08 Marks)**
   b. Write a macro for the following cases:
      i) Read a character from keyboard without echo.
      ii) Display a message on the CRT monitor.
      iii) Display an integer on CRT monitor. **(06 Marks)**
   c. Write a subroutine to print a string on printer. Call this subroutine from a main program to print two message strings. **(06 Marks)**

PART – B

5 a. Interface 4 × 4 keyboard to 8086 microprocessor using 8255 PPI. Write the necessary circuit diagram and program. **(10 Marks)**
   b. Write an ALP to interface seven segment display to 8086 and demonstrate the display as flashing display. Write the necessary circuit diagram. **(10 Marks)**

6 a. Write the control word format of 8087 and define various fields. **(04 Marks)**
   b. What are the functions of following 8087 instructions? Explain.
      (i) FENI   (ii) FCOMP   (iii) FSTENV   (iv) FLDL2E
      (v) FLDZ **(10 Marks)**
   c. Write 8087 ALP to compute the volume of the sphere. **(06 Marks)**

7 a. With a neat block diagram, explain the maximum mode operation of 8086. **(10 Marks)**
   b. What are the characteristics of PCI and USB interface? **(06 Marks)**
   c. Show an interface of printer to a 8086 microprocessor. Define the signals of importance. **(04 Marks)**

8 Write short notes for the following:
   a. Pentium microprocessor. **(08 Marks)**
   b. Special registers of 80386. **(06 Marks)**
   c. Memory structure of 80386. **(06 Marks)**

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