USN ☐☐☐☐☐☐☐☐☐☐   **06EC62**

Sixth Semester B.E. Degree Examination, Dec.2015/Jan.2016
Microprocessors

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a.   What are program visible registers? Draw the programming model of 8086. Briefly explain segment and offset registers. **(10 Marks)**
     b.   Explain the advantages of segment overlapping and also segment override prefix. **(06 Marks)**
          Given that (IP) = 2BC0h, (CS) = 0200h,   DISP = 5119h, (BX) = 1200h, (DS) = 212Ah, (224A0) = 0600h and (275B9h) = 098Ah.
     c.   Find the address for a branching instruction that uses,
          i)   Intra segment direct addressing mode.
          ii) Intra segment indirect addressing which uses Bx register. **(04 Marks)**

2   a.   Find the machine language code for the instruction that uses Bx and 31 registers and base indexed addressing to add a byte in memory location to the AL and put the result in AL register. ADD-opcode : 0 0 0 0 0 0 d w. **(05 Marks)**
     b.   Explain what is wrong with these instructions if any, correct them and explain the operation:
          i)   MOV CS, AX
          ii) IN DX, AL. **(04 Marks)**
     c.   Develop an algorithm for performing an unsigned division of one word into three words. **(06 Marks)**
     d.   Explain the following:
          i) BTC   ii) SCASB   iii) ALIGN   iv) EVEN   v) PTR **(05 Marks)**

3   a.   Compare the following:
          i) Label and Prefix
          ii) Instruction and Assembler directive **(06 Marks)**
     b.   Write an ALP to search a character in string. **(04 Marks)**
     c.   Using horner rule, write an ALP to convert an ASCII number to its equivalent binary number. **(10 Marks)**

4   a.   Write a macro that uses BIOS video function call to clear the screen and homes the cursor to the upper left hand corner of the screen. **(08 Marks)**
     b.   Explain through block diagram, how NMI interrupt is used in power failure detection. **(08 Marks)**
     c.   Explain how microprocessor response to interrupt. **(04 Marks)**

PART – B

5   a.   Explain the control word register format for 8255. **(04 Marks)**
     b.   Write an algorithm to detect any key press in software keyboard interfacing. **(08 Marks)**
     c.   Interface and explain a 8 digit seven segment display unit in multiplexed mode. **(08 Marks)**

6 a. Explain the control register format of 8087. (05 Marks)

 b. Explain the following instructions:
  i) FDIVR ii) FXAM iii) FSINCOS iv) F2XMI v) FLDCW
  (05 Marks)

 c. Write an ALP to 8087, to find the resonant frequency. (10 Marks)

7 a. Explain in detail universal serial Bus (USB). (10 Marks)

 b. Explain with block diagram the maximum mode of operation of 8086 microprocessor. (10 Marks)

8 a. Write a short note on special purpose registers of 80386. (05 Marks)

 b. Write a short note on pentium processors. (05 Marks)

 c. CALL address and JMP address. (05 Marks)

 d. Distinguish procedure and MACRO. (05 Marks)

* * * * *