USN ☐☐☐☐☐☐☐☐☐☐

15EC42

Fourth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Microprocessor

Time: 3 hrs.   Max. Marks: 80

Note: *Answer FIVE full questions, choosing one full question from each module.*

Module-1

1 a. Define Microprocessor. Describe architecture of 8086, with neat block diagram. **(10 Marks)**
   b. Explain the significance of following pins of 8086 :
      i) ALE   ii) RESET   iii) $\overline{TEST}$ iv) M/$\overline{IO}$. **(04 Marks)**
   c. Explain the physical Address formation in 8086. **(02 Marks)**

OR

2 a. Explain the following addressing modes of 8086 :
      i) Register Addressing mode   ii) Based Indexed Addressing mode
      iii) Immediate Addressing mode   iv) Direct Addressing mode. **(08 Marks)**
   b. Explain the significance of following 1 bit indicators in opcodes of 8086 processor. **(04 Marks)**
   c. The Opcode for MOV instructions is "100010". Determine machine language code for the following instructions. i) MOV.AL.[BX]   ii) MOV 56[SI], CL. **(04 Marks)**

Module-2

3 a. Explain the following instruction with examples :
      i) LEA   ii) IDIV   iii) XLAT. **(06 Marks)**
   b. Write a ALP to convert a 4 digit BCD No. into hexadecimal number. **(06 Marks)**
   c. Differentiate between the following instructions :
      i) AND & TEST   ii) SHIFT & ROTATE. **(04 Marks)**

OR

4 a. What are assembler directives? Explain the following assembles directives with examples :
      i) ASSUME   ii) DUP   iii) DB   iv) LABEL. **(08 Marks)**
   b. Write a ALP to find whether the given number is 2 out of 5 code. **(04 Marks)**
   c. Explain the string instructions of 8086. **(04 Marks)**

Module-3

5 a. Explain the stack structure of 8086 in detail. **(06 Marks)**
   b. Differentiate between procedure and Macro's. **(06 Marks)**
   c. Write a ALP to find factorial of Number. **(04 Marks)**

OR

6 a. Write a programme to generate a delay of 100 m sec using 8086 microprocessor operating on 10MHz frequency. Show calculation for the delay. **(06 Marks)**
   b. Explain the Interrupt Acknowledge sequence of 8086 with timing diagram. **(06 Marks)**
   c. Explain interrupt response structure of 8086. **(04 Marks)**

Module-4

7 a. Draw and discuss typical maximum mode of 8086. **(08 Marks)**
   b. Explain different modes of operation of 8255. **(08 Marks)**

OR

8 a. Interface two 4k × 8 EPROMS and two 4k × 8 RAM chips with 8086. (06 Marks)
   b. Interface eight seven segment display using 8255 with 8086. (06 Marks)
   c. Draw the timing diagram for $\overline{RQ}$ / $\overline{GT}$ for maximum mode. (04 Marks)

Module-5

9 a. Draw and discuss the interface between 8086 and 8087. (08 Marks)
   b. Explain the following keyboard handling INT21 DOS function :
       i) Function 01h   ii) Function 08h. (03 Marks)
   c. Write an ALP to interface stepper molar to 8086. (05 Marks)

OR

10 a. Differentiate between :
        i) Harvard and Von Neuman Architecture   ii) RISC and CISC Architecture. (06 Marks)
    b. Explain the significance of different bits of control word. Register format of 8253/54.
        (06 Marks)
    c. Write a program to generate triangular wave using DAC 0800. (04 Marks)

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