10EC/TE62

Sixth Semester B.E. Degree Examination, Aug./Sept.2020
Microprocessors

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a. Briefly explain the historical background of Intel microprocessors.   **(04 Marks)**
    b. With a neat block diagram, explain the BIU and EU of 8086 microprocessor.   **(10 Marks)**
    c. What is memory segmentation? List the advantages of memory segmentation.   **(06 Marks)**

2   a. Write the instruction template for the following instructions. Also mention the encoded bits.
        (i)   MOV AX, BX   (ii) MOV AL, [1234h]
        (iii) MOV CL, [BX] [SI]   (iv) MOV DX, 1568h   **(08 Marks)**
    b. What is the outcome of the following program segment:
        (i) MOV AL, 34h   (ii) MOV AL, 08h
           MOV BL, 38h   MOV BL, 09h
           SUB AL, BL   MUL BL
           DAS   AAM   **(06 Marks)**
    c. What are assembler directives? Explain the following assembler directives:
        (i) DW   (ii) EQU   (iii) PUBLIC   (iv) EXTRN   **(06 Marks)**

3   a. Write an ALP to generate factors of a given number.   **(06 Marks)**
    b. Explain string instructions, with an example for each.   **(08 Marks)**
    c. Distinguish between a MACRO and a PROCEDURE. Write an ALP that displays a carriage
        return and a line feed using a MACRO.   **(06 Marks)**

4   a. Explain the software and hardware interrupt structure of 8086.   **(10 Marks)**
    b. Write a scheme to generate NMI interrupt on power failure and explain.   **(10 Marks)**

PART – B

5   a. Interface a 4 × 4 keypad to 8086 CPU and write a program to identify a key pressed with
        relevant comments.   **(12 Marks)**
    b. Write an ALP to rotate stepper motor in clockwise direction of 180° and then in
        anticlockwise direction of 360°.   **(08 Marks)**

6   a. Explain the data types of 8087 NDP.   **(10 Marks)**
    b. Represent 23.25 using long real (64 bit).   **(04 Marks)**
    c. Explain the following instructions of 8087 NDP with examples:
        (i) FXCH   (ii) FINIT   (iii) FADD   **(06 Marks)**

7   a. What are the different status and control signals generated on $\bar{s}_2$, $\bar{s}_1$ and $\bar{s}_0$ in maximum
        mode of 8086? Explain briefly.   **(08 Marks)**
    b. Write short notes on: (i) PCI   (ii) USB   (iii) LPT   **(12 Marks)**

8   a. Briefly explain 80386 special registers.   **(08 Marks)**
    b. Write the salient features of 80486.   **(06 Marks)**
    c. Describe the basic features of Pentium processors.   **(06 Marks)**

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