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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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.