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**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)
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- 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)
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- 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.