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17EC46

**Fourth Semester B.E. Degree Examination, July/August 2022**  
**Microprocessor**

Time: 3 hrs.

Max. Marks: 100

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

**Module-1**

- 1 a. Explain the architecture of 8086 microprocessor with neat block diagram. (10 Marks)
- b. Explain the flag register bits of 8086 and write its format. (08 Marks)
- c. Explain the significance of the following pins:  
(i)  $M/\overline{IO}$       ii) ALE (02 Marks)

**OR**

- 2 a. Explain the addressing modes of 8086 and give an example for each addressing mode. (10 Marks)
- b. Write a program to exchange a block of 5 bytes data between two memory locations. (10 Marks)

**Module-2**

- 3 a. What are assembler directives? Explain any four directives. (10 Marks)
- b. Write 8086 program to arrange the number in ascending order. (10 Marks)

**OR**

- 4 a. List and explain the string manipulation instructions of 8086 microprocessor. (10 Marks)
- b. Write an ALP to convert packed BCD number to its ASCII equivalent. (10 Marks)

**Module-3**

- 5 a. Explain the dedicated interrupts of 8086. (10 Marks)
- b. Explain the operation of (i) Push and Pop instructions (ii) Call and ret instructions. (10 Marks)

**OR**

- 6 a. Draw the interrupt vector table and write the sequence of operations that are performed when an interrupt is recognized. (10 Marks)
- b. Write a program to generate a delay of 100ms that runs on 10 MHz frequency in 8086 microprocessor. Also show the calculations. (10 Marks)

**Module-4**

- 7 a. Explain the maximum mode operation of 8086 with block diagram. (10 Marks)
- b. Interface two 8K×8 EPROM and two 8K×8 RAM chips to 8086. Show the memory mapping. (10 Marks)

**OR**

- 8 a. Draw a timing diagram for read and write operation in minimum mode. (10 Marks)
- b. Explain the PID 8255 with the block diagram. (10 Marks)

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.

**Module-5**

- 9 a. Differentiate between :
- (i) Harvard and Von-Neumann architectures
  - (ii) CISC and RISC architecture
- (10 Marks)
- b. Explain the following INT-21 DOS function calls:
- i) Function 09h
  - ii) Function 01h
  - iii) Function 0Ah
  - iv) Function 02h
- (10 Marks)

**OR**

- 10 a. Write an ALP to rotate the stepper motor one rotation in clockwise and one rotation in anticlockwise direction. (10 Marks)
- b. Write a program to generate a square wave in 8086. Also show the interfacing diagram. (10 Marks)

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