CBCS SCHEME

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17EC46

Fourth Semester B.E. Degree Examination, Jan./Feb. 2023
Microprocessors

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. With a neat block diagram, explain the architecture of 8086. **(10 Marks)**

b. Explain flag register of 8086 with its formats. **(06 Marks)**

c. Why multiplexing technique is used in 8086. **(04 Marks)**

OR

2 a. What is addressing mode? Explain of 8086 with examples. **(12 Marks)**

b. Explain the following pins of 8086 :
i) ALE ii) RESET iii) $\overline{TEST}$ v) $M/\overline{IO}$. **(04 Marks)**

c. Explain the following instructions :
i) SUB and CMP iii) AND and TEST. **(04 Marks)**

Module-2

3 a. Explain the following instructions of 8086.
i) NEG ii) CBW iii) LEA iv) IDIV v) XLAT. **(10 Marks)**

b. What is assembler directives? Explain any four. **(10 Marks)**

OR

4 a. Explain the functions of the following instructions with example :
i) ROL ii) RCR iii) SHL iv) SAR v) ROR. **(10 Marks)**

b. Write an ALP to find the smallest of a number in a given array. Assume starting address 2000H. **(10 Marks)**

Module-3

5 a. What is stack? Explain with neat diagram of 8086 stack operation. **(10 Marks)**

b. Explain any four differences between MACRO and PROCEDURE. **(04 Marks)**

c. What is the difference between maskable and non-maskable interrupts of 8086. **(06 Marks)**

OR

6 a. Write a program to generate a delay of 100ms using 8086 system that runs on 10MHz frequencies. **(10 Marks)**

b. Explain the types of interrupts and the action taken by the 8086 when an interrupt occurs in details. **(10 Marks)**

Module-4

7 a. Sketch the minimum mode operation of 8086 and explain its operation. (10 Marks)

b. Interface 4K × 8 EPROM and two 4K × 8 static RAM chips to 8086. (10 Marks)

OR

8 a. With a neat diagram explain 8255 architecture. (10 Marks)

b. Show an interface of keyboard with 8086 and explain with a flowchart. (10 Marks)

Module-5

9 a. Explain the internal architecture of 8087. (10 Marks)

b. Explain the following INT21 DOS function calls.

i) Function 01H
ii) Function 02H
iii) Function 09H
iv) Function 07H
v) Function 0AH. (10 Marks)

OR

10 a. Write a program to generate triangular wave using DAC0800. (10 Marks)

b. Write an ALP to rotate a stepper motor 100 steps clockwise direction for an 1.8° steps angle stepper motor connected to 8255 port. Show the calculation. Assume motor is rotating 12 rpm and processor speed 10MHz. (10 Marks)

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