CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

Fourth Semester B.E. Degree Examination, June/July 2019
Microprocessors

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1 a. Why multiplexing technique is used in 8086? Mention its advantages. **(05 Marks)**
   b. Explain the internal architecture of Intel 8086 with neat block diagram and explain in brief. **(10 Marks)**
   c. Analyze the effective and physical address if :
      i.   Disp = 1B57H,   DS = 2100H
      ii. DI = 1045H,   DS = 2100H
      iii. BP = 8000H,   DS = 5000H,   SS = 1000H,   Disp = 2345H
      iv. BX = 0158H,   SI = 1045H,   DS = 2100H,   SS = 1400H
      v.   BP = 0720H,   Disp = 1000H,   DS = 2000H,   SS = 4000H. **(05 Marks)**

OR

2 a. List the need of control word register of Intel 8086. Explain with an example. **(08 Marks)**
   b. What is addressing modes? Explain any four addressing modes with an example to each. **(08 Marks)**
   c. Interpret the following instructions : i) SUB and CMP ii) AND and TEST. **(04 Marks)**

Module-2

3 a. Identify the operation of the following instructions :
      i) NEG   ii) CBW   iii) DAA   iv) AAD   v) SAHF. **(05 Marks)**
   b. Write ALP to move 16 bytes of string of data from the offset 0200H to 0300H. **(10 Marks)**
   c. What are assembler directions? Explain the following assembler directions.
      i) Model   ii) Assume   iii) DB   iv) DUP   v) END. **(05 Marks)**

OR

4 a. Tell the functions of the following instructions with an example :
      i) ROL   ii) RCR   iii) SHL   iv) SAR   v) ROR. **(10 Marks)**
   b. Write ALP o convert 8 digits packed BCD number to 16 digits unpacked BCD number. **(10 Marks)**

Module-3

5 a. Explain the operation of the stack using PUSH and POP instructions. **(05 Marks)**
   b. Write ALP to find the factorial of an 8-bit number. **(10 Marks)**
   c. Interpret the maskable and non–maskable interrupts of 8086. **(05 Marks)**

OR

6 a. Write ALP to generate a delay of 100ms using an 8086 system that runs on 10MHz frequency. **(10 Marks)**
   b. Analyze the interrupt cycle of 8086. **(10 Marks)**

Module-4

7 a. Draw the pin configuration of Intel 8086 and explain the operation of pins in maximum mode of operation. **(10 Marks)**

   b. Interface two 4K × 8 EPROM and two 4K × 8 RAM chips with 8086. Show the memory mapping. **(10 Marks)**

OR

8 a. Show the block diagram of Intel 8255 and explain the operation of each unit in detail. **(10 Marks)**

   b. Interface 8 seven segment display using 8255 with 8086. Write ALP to display 1, 2, 3, 4, 5, 6, 7, 8 over the 8 seven segment display continuously. **(10 Marks)**

Module-5

9 a. Interface 8 bit ADC 0808 through 8255 to 8086. Write ALP to accept the channel number through key board $(O_0 - O_7)$, convert analog i/p of selected channel to digital o/p and store the result as a digital data. **(10 Marks)**

   b. Design a stepper motor controller and write ALP to rotate shaft of 4-phase stepper motor.
   i) In clockwise 5 rotations   ii) In anticlockwise 5 rotations. **(10 Marks)**

OR

10 a. Interpret the following INT 214 dos function. I) function 09H ii) function 4CH. **(08 Marks)**

   b. Write ALP to generate a square waveform using DAC 0800 through 8255 to 8086. **(12 Marks)**

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