CBCS Scheme

USN ⌷⌷⌷⌷⌷⌷⌷⌷⌷⌷   **15EC42**

Fourth Semester B.E. Degree Examination, June/July 2018
Microprocessor

Time: 3 hrs.   Max. Marks: 80

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

Module-1

1 a. Explain flag register of 8086 with its format.   **(08 Marks)**
   b. Determine the physical address for the following instructions, if DS = 2000h, SS = 3000h, ES = 4000h, BP = 0010h, BX = 0020h, SP = 0030h, SI = 0040h, DI = 0050h,
      i) MOV AL, [BP]
      ii) MOV CX, [BX]
      iii) MOV AL, [BP + SI]
      iv) MOV ES : [BX], AL.   **(08 Marks)**

OR

2 a. Write an 8086 ALP to add a data byte present at address 2000 : 0600h with a data byte present at address 3000 : 0700h and store the result at address 4000 : 0900h.   **(06 Marks)**
   b. Explain machine language formats for any 2 instructions.   **(04 Marks)**
   c. Given the opcode 8907h, explain how these two bytes are interpreted in machine language what is the resulting instruction.   **(06 Marks)**

Module-2

3 a. Using string instruction, write an 8086 ALP to copy 5 words from source memory area to destination memory area. Give the significance of SI, DI, CX and the DF bit.   **(10 Marks)**
   b. List all the flag manipulation and processor control instructions.   **(06 Marks)**

OR

4 a. What are assembler directives? Explain any 5 assembler directives.   **(07 Marks)**
   b. List and explain the string manipulation instructions. Also give its advantages.   **(09 Marks)**

Module-3

5 a. Explain the operation of i) PUSH and POP instructions ii) call and ret instruction.   **(06 Marks)**
   b. Draw the interrupt vector table and write the sequence of operations that are performed when an interrupt is recognized.   **(10 Marks)**

OR

6 a. Explain maskable and non-maskable interrupts.   **(04 Marks)**
   b. Differentiate between procedures and Macros.   **(05 Marks)**
   c. Write a program to generate a delay of 100ms using an 8086 system that runs on 10 MHz frequency. Show the calculations.   **(07 Marks)**

Module-4

a. With a neat circuit diagram, explain minimum mode configuration of 8086 system. **(08 Marks)**

b. Draw the timing diagram for read and write operation of maximum mode. **(08 Marks)**

OR

a. Write the control word format of 8255 PIA. **(06 Marks)**

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

Module-5

a. Write an 8086 ALP to rotate the stepper motor in clockwise direction by 360˚ and then in anti clockwise direction by 180˚. Assume 1–8 deg stepper and proc 'DELAY', **(08 Marks)**

b. Explain the following INT 21h DOS function calls.
i) Function 01h   ii) function 02h   iii) function 09h   iv) function 0Ah. **(08 Marks)**

OR

a. Explain 8087 architecture with a neat diagram. **(08 Marks)**

b. Explain von-neumann and Harvard CPU architecture and CISC and RISC CPU architecture. **(08 Marks)**

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