

CBCS Scheme

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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

- 7 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

- 8 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

- 9 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. (08 Marks)
i) Function 01h ii) function 02h iii) function 09h iv) function 0Ah.

OR

- 10 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)
