

CBCS Scheme

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15EC42

Fourth Semester B.E. Degree Examination, Dec.2017/Jan.2018 Microprocessor

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Define Microprocessor. Describe architecture of 8086, with neat block diagram. (10 Marks)
- b. Explain the significance of following pins of 8086 :
i) ALE ii) RESET iii) TEST iv) M/IO. (04 Marks)
- c. Explain the physical Address formation in 8086. (02 Marks)

OR

- 2 a. Explain the following addressing modes of 8086 :
i) Register Addressing mode ii) Based Indexed Addressing mode
iii) Immediate Addressing mode iv) Direct Addressing mode. (08 Marks)
- b. Explain the significance of following 1 bit indicators in opcodes of 8086 processor. (04 Marks)
- c. The Opcode for MOV instructions is "100010". Determine machine language code for the following instructions. i) MOV.AL.[BX] ii) MOV 56[SI], CL. (04 Marks)

Module-2

- 3 a. Explain the following instruction with examples :
i) LEA ii) IDIV iii) XLAT. (06 Marks)
- b. Write a ALP to convert a 4 digit BCD No. into hexadecimal number. (06 Marks)
- c. Differentiate between the following instructions :
i) AND & TEST ii) SHIFT & ROTATE. (04 Marks)

OR

- 4 a. What are assembler directives? Explain the following assembles directives with examples :
i) ASSUME ii) DUP iii) DB iv) LABEL. (08 Marks)
- b. Write a ALP to find whether the given number is 2 out of 5 code. (04 Marks)
- c. Explain the string instructions of 8086. (04 Marks)

Module-3

- 5 a. Explain the stack structure of 8086 in detail. (06 Marks)
- b. Differentiate between procedure and Macro's. (06 Marks)
- c. Write a ALP to find factorial of Number. (04 Marks)

OR

- 6 a. Write a programme to generate a delay of 100 m sec using 8086 microprocessor operating on 10MHz frequency. Show calculation for the delay. (06 Marks)
- b. Explain the Interrupt Acknowledge sequence of 8086 with timing diagram. (06 Marks)
- c. Explain interrupt response structure of 8086. (04 Marks)

Module-4

- 7 a. Draw and discuss typical maximum mode of 8086. (08 Marks)
- b. Explain different modes of operation of 8255. (08 Marks)

OR

- 8 a. Interface two $4k \times 8$ EPROMS and two $4k \times 8$ RAM chips with 8086. (06 Marks)
b. Interface eight seven segment display using 8255 with 8086. (06 Marks)
c. Draw the timing diagram for $\overline{RQ} / \overline{GT}$ for maximum mode. (04 Marks)

Module-5

- 9 a. Draw and discuss the interface between 8086 and 8087. (08 Marks)
b. Explain the following keyboard handling INT21 DOS function :
i) Function 01h ii) Function 08h. (03 Marks)
c. Write an ALP to interface stepper molar to 8086. (05 Marks)

OR

- 10 a. Differentiate between :
i) Harvard and Von Neuman Architecture ii) RISC and CISC Architecture. (06 Marks)
b. Explain the significance of different bits of control word. Register format of 8253/54. (06 Marks)
c. Write a program to generate triangular wave using DAC 0800. (04 Marks)
