

CBCS Scheme

USN

15EC42

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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) $\overline{\text{TEST}}$ iv) $\overline{\text{M/IO}}$. (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)

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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 : (03 Marks)
i) Function 01h ii) Function 08h.
c. Write an ALP to interface stepper motor to 8086. (05 Marks)

OR

- 10 a. Differentiate between : (06 Marks)
i) Harvard and Von Neuman Architecture ii) RISC and CISC Architecture.
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)
