Code: 13A04507 **R13**

B.Tech III Year I Semester (R13) Supplementary Examinations June 2016

MICROPROCESSORS & INTERFACING

(Common to CSE & IT)

Time: 3 hours Max. Marks: 70

PART - A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) List the types of memories available and their usage in microprocessor based system design.

(b) What is the difference between program counter (PC) and instruction pointer (IP)?

(c) List the pins utilized in maximum mode of 8086.

(d) List the available branching instruction types in 8086 instruction set.

(e) Difference between memory mapped IO and IO mapped IO.

(f) Write the major steps involved in interrupt service.

(g) Explain the difference in stack operation with regard to 8086 and 8051.

(h) List the important features of 8051.

(i) Write difference between MOVX and MOVC.

(j) List the handshaking signals required for MODEM interface using 8251.

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

2 (a) Explain the concept of segmented memory. What are its advantages?

(b) Write the differences between procedure and macro with an example.

OR

3 (a) Compare the features of 8086 and 8085 processor.

(b) Explain how pipelining is achieved in 8086.

(c) Explain the function of following pins in 8086:
(i) ALE. (ii) INTR. (iii) HOLD. (iv) $\overline{TEST}$ (v) DT/$\overline{R}$.

UNIT - II

4 (a) Explain the following instructions:
(i) AAM. (ii) DAA. (iii) CBW. (iv) LAHF/SAHF. (v) LDS.

(b) Explain the addressing modes of 8086 with examples:
(i) Register addressing mode.
(ii) Indirect addressing mode.
(iii) Relative index addressing mode.

OR

5 (a) Explain the purpose of following directives:
(i) ORG. (ii) EQU. (iii) ASSUME. (iv) MODEL. (v) DW.

(b) With an example describe the difference between jump and call instruction. Explain the processor internal operation in executing them.

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UNIT - III

6 Interface two chips of 32 k x 8 ROM and two chips of 32 k x 8 RAM with 8086 according to the following map ROM1 and ROM2 from F0000H-FFFFFH, RAM1 and RAM2 from C0000H-CFFFFH. Neatly draw the interface diagram with required signals and decoding logic.

OR

7 (a) Briefly explain the differences between minimum and maximum mode of operation of 8086.

(b) Draw the architecture of 8257 and explain each block in detail.

UNIT - IV

8 Write an assembly language program (ALP) required to read from the 4x4 key matrix using 8255 PPI. Draw neat diagrams to explain the setup.

OR

9 Write an ALP required to display, the BCD (0-9) values on the seven segment display in ascending order. Call required delay procedure. Draw neat diagrams to explain the setup.

UNIT - V

10 (a) Write about the necessity of RS 232 and give its specifications.

(b) For the given ALP below determine the baud along with serial & timer modes set.

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MOV  SCON, #52H
MOV  TMOD, #20H
MOV  THI,    F3H
SETB  TRI            ; start timer_
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OR

11 Write ALP subroutine for 8051 to serially transmit letters A to Z, 8-bit ASCII code, in an infinite loop at 2400 baud. Assume 8051 clock at 12 MHz.

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