

Code: 13A04507

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)

- 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.

```
MOV SCON, #52H
MOV TMOD, #20H
MOV TH1, F3H
SETB TRI ; start timer_
```

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.
