

Con. 5496-08.

(REVISED COURSE)

RC-6473

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Solve any **four** questions from remaining.
 (3) Assume **suitable** address and data if **necessary**.

1. (a) Design 8086 based (minimum mode) system with following peripherals – 15
 - (i) 16 KB EPROM using 8 K x 8 devices
 - (ii) 16 KB RAM using 8 K x 8 devices
 - (iii) Three 16 bit I/o ports using 8255 in memory mapped I/o scheme.
- (b) Why normally word should be stored starting at even memory locations ? 5

2. (a) Explain the following instructions :- 12
 - (i) OUT DX, AX
 - (ii) IMUL
 - (iii) XLAT
 - (iv) SETB O1 H
 - (v) SJMP
 - (vi) MOVX A, @ DPTR
- (b) Explain all Dedicated Interrupts of 8086. 8

3. (a) Write a program to transfer message 'PASS' using serial communication of 8051 at 4800 baud Rate. Oscillator frequency is 11.0592 MHz. 12
- (b) Write a program to generate square wave of 500 Hz on P1.0 using TIMER 1 of 8051. Oscillator frequency is 12 MHz. 8

4. (a) Design 8051 based microcontroller system with following details – 12
 - (i) 2764 to be used as program memory
 - (ii) 4 digit multiplexed seven segment display connected at Port 1. Use 7447/7448 display driver. Explain how it works
- (b) Write a program to convert 2 digit Binary number into its equivalent BCD No. Stored Result in R2 – R1 – R0. 8

5. (a) Draw 8086 – 8087 Interface with neat diagram and explain the working of the system. 12
- (b) Convert $(100.50)_{10}$ into short Real Representation used by 8087. 8

6. (a) Write a program to compare two strings stored at 2000 : 0200 and 3000 : 0300. The length of string is 10 bytes and in forward direction. Display 01 if strings are equal or 00 if strings are not equal. Assume address of PA of 8255 is 80H, where display is connected. 12
- (b) Explain single stepping operation of 8051 with relevant diagram. 8

7. Write short notes on (any **three**) :-

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- (a) RS 232C serial standard
 - (b) Port structure of 8051 (P0 & P1 only)
 - (c) Data types of 8087
 - (d) Resolving Bus contention is loosely coupled configuration.
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