

## BT-5 / D-15

## MICROPROCESSORS AND INTERFACING

## Paper-ECE-311-E

Time allowed : 3 hours]

[Maximum marks : 100

*Note : Attempt five questions in all, selecting at least one question from each section.*

## Section-I

1. (a) Give the significance of BIU and EU in 8086 mp ? 5
- (b) Draw the functional block diagram of 8086 microprocessor and also explain the bit pattern of PSW ? 15
2. (a) Draw the relevant pin diagram for 8086 Microprocessor and explain function of each pin in detail? 15
- (b) Explain the concept of Physical address generation in 8086 microprocessor ? 5

## Section-II

3. (a) Generate the HEX codes for the following instructions : 12
  - (i) Mov [BP+SI], 7799h
  - (ii) Mov Ax, [BX]
  - (iii) Mov [0964], Cx
- (b) If BH=0B3H what is the value of BH in hex after the instruction SAR BH, 1 IF AL= 68H and BL= 78H explain how DAS instruction (after subtracting BL from AL) adjusts to the BCD result. 8
4. (a) Explain the following instructions : 12
  1. LDS 2. XLAT 3. AAA 4. DAA 5 ROL 6. LEA
- (b) Write a program to convert Hex code into ASCII code and then from ASCII code to Hex code ? 8

**Section-III**

5. (a) Design an interface between CPU 8086 and two chips of 32K X 8 ROM and four chips of 32 K X 8 RAM according to the following memory map ? 15
- (b) Give the cell structures of PROM and E<sup>2</sup> PROM memories ? 5
6. (a) Draw and explain the timing diagram for RD operation from an I/O device in MX Mode of 8086 ? 10
- (b) Classify semiconductor memory. And explain the cell structures of SRAM and DRAM ? 10

**Section-IV**

7. (a) Write down the steps involved when an interrupt INT 32h is encountered in the main program and calculate address of ISR for this interrupt ? 10
- (b) With the help of a block diagram explain the functioning of Intel 8259 chip ? 10
8. (a) Interface 8-bit ADC with 8086 using 8255 ports. Configure port A of 8255 for transferring output of ADC to the CPU and port C for control signals. Assume that an analog input is present at I/P6 of the ADC and a clock input of suitable frequency is available for ADC. Draw the schematic and write the required assembly language program ? 15
- (b) Explain the functioning of Intel 8237 IC ? 5