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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^2 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