BT-5/D06

Microprocessor and Interfacing
(EC and Electrical)

Paper : ECE-311 E

Time—Three Hours] **[Maximum Marks—100**

Note :— Attempt any **Five** questions.

UNIT-I

1. (a) If the Data Segment Register DS contains 4000 H, what physical address will the instruction MOV AL, [234 BH] read? 5

   (b) Discuss the advantages of segmentation of address space in 8086 microprocessor. 5

   (c) Discuss how 8086 operates in maximum mode. Compare minimum mode and maximum mode of operation. 10

2. (a) Give the pin diagram of 8086 µp chip. Discuss the functions of each pin. 7

   (b) Discuss how 8086 C/K and reset signals are generated using 8284 ? 7

   (c) Discuss the role of 'WAIT STATE' in the operation of 8086 µp. How these are generated ? 6

UNIT-II

3. (a) Using WHILE - DO structure, draw a flow chart. Write Pseudo code and 8086 programme for the following problems. If the temperature of an oven is less than 100°C, turn the heater ON and wait for the temperature to reach 100°C. If the temperature is at or above 100°C then turn the heater OFF. 10

   (b) What is the difference between recursive and reentrant procedure ? Write the programme for finding the value of n factorial. 10

4. (a) Write the 8086 program to compute the averages of 4 bytes stored in an array in memory. 7

   (b) Spot the grammatical syntax errors in the following instructions :

   (i) MOV BH, AX

   (ii) IN BL, 04H

   (iii) ADD AL, 2073 H. 6

(c) What do you understand by pointers and index registers in 8086 Up ? Discuss in brief. 6

UNIT-III

5. (a) What do you understand by the term DRAM Controllers ? Discuss the working of TMS 4500 Controller in brief. 10

(b) Draw and discuss the timing diagram of 8086 μp during Read and write operations. 10

6. (a) How address decoding is done in 8086 while interfacing ROM Chips ? Describe with the help of a suitable example. 10

(b) What is the difference between the memory-mapped I/O and direct I/O ? Give the main advantages and disadvantages of each. 10

UNIT-IV

7. (a) Describe the use of CAS 0, CAS 1, and CAS 2 lines in a system with a cascaded 8259A. 6

(b) Describe the functions with pin diagram of the following chips:
(i) 8255
(ii) 8251. 14

8. (a) Describe the role of a DMA chip in Microprocessor Based Systems. 7

(b) The starting address of the subroutine is 934 B : 1252H. If the interrupting device supplies vector type 41 H, what are the locations where the starting address of the subroutine is stored ? 6

(c) Write short note on "Microcomputer Video Displays". 4