

1129

B.E. (Electronics and Communication Engineering)**Third Semester****EC-303: Microprocessor and Applications****Time allowed: 3 Hours****Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) What is the function of the ALE signal?
- b) What is an assembler?
- c) What is the difference between RAR and RAL instruction?
- d) What are the software techniques for generating time delays?
- e) Among A/D and D/A converters, which serve as input and which serve as output devices? (5x2)

UNIT - I

- II. a) What are the various types of instruction formats of 8085? Give example for each format.
- b) Interface a 4096 X 8 ROM with an 8085 using a 3-to-8 decoder so that the memory address of the chip ranges from 0000H to 0FFFH. (2x5)
- III. a) Design a seven-segment LED output port with the device address F6H, using a 3:8 decoder -and a common-anode seven-segment LED.
- b) How can you select 8 blocks of address each of 4 KB area using a decoder 1C? Draw the arrangement showing all signals. (2x5)
- IV. a) A system is designed to monitor the temperature of a furnace. Temperature readings are recorded in 16 bits and stored in memory locations starting at XX60H. The high-order byte is stored first and the low-order byte is stored in the next consecutive memory location. However the high-order byte of all the temperature readings is constant. Write a program to transfer low-order readings to consecutive memory locations starting at XX80H and discard the high-order bytes.
- b) A bar code scanner scans the boxes being shipped from the loading dock and records all the codes in computer memory. The end of the data is indicated by the byte 00. The code 10100011(A3H) is assigned to 19" television sets. Write a program to count the number of 19" television sets that were shipped from the following data set.
Data (H): FA, 67, A3, B8, A3, A3, FA,00. (2x5)

P.T.O.

(2)

UNIT – II

- V. a) Write a delay routine for 10ms using the instructions of 8085 having clock period of 3MHz.
- b) Write a program to meet the following specs:
- i) Initialize the stack pointer register at XX99H.
 - ii) Clear the memory locations starting from XX90H to XX9FH
 - iii) Load register pairs B, D, and H with data 0237H, 1242H and 4087H respectively.
 - iv) Push the contents of the register pairs B, D and H on the stack. (2x5)
- VI. a) Interpret the accumulator bit pattern for the SIM instruction. What are RST 7.5, 6.5 and 5.5?
- b) Explain and illustrate the mode set register format of 8257. (2x5)
- VII. a) Interface a temperature sensor using an A/D converter and port A of the 8255 with the 8085.
- b) What is direct memory access? What is it used for? Describe briefly any programmable DMA controller. (2x5)

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