4TH SEM ./AE & IE/CS & E/ETC. & COMM./E&TC/IT/ 2023(S)

TH-3 Microprocessor & Microcontroller

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

   a. Define Microprocessor and mention at least two applications of it.
   b. Mention the function of stack pointer (SP) and Program Counter (PC).
   c. What is subroutine program in 8086?
   d. State the difference between one pass assembler and two pass assembler.
   e. What is the role of ALE signal in 8085 microprocessor?
   f. List different types of interrupt in 8085 microprocessor.
   g. What is the function of USART?
   h. Mention the function of XRL A, direct.
   i. What is the use of EU and BIU of 8086?
   j. Write down the size of DPTR and stack pointer in 8051 microcontroller.

2. Answer **Any Six** Questions 6 x 5

   a. Write the difference between SPR and GPR of 8085 microprocessor.
   b. Draw the timing diagram of LXI D instruction of 8085 microprocessor.
   c. What is bus? With neat diagram explain bus structure of 8085 microprocessor.
   d. Explain different addressing modes of 8085 microprocessor with example.
   e. What are different operating modes of 8255? Explain each mode.
   f. Write an assembly language program to find the division of 16 bit nos. using 8086 instructions.
   g What is 7 segment display? Describe the interfacing of 7 segment display.

3 Draw the architecture of 8085 and mention its various function of each block. 10

4 Write an assembly language program to find the smallest number in a given data array. 10

5 Design and explain the traffic light controller program with a neat block diagram. 10

6 Explain the various flags in the PSW register of microcontroller. 10

7 Discuss the register organization of 8086. Explain the function of each register. 10