

Code: EE6T3

**III B.Tech - II Semester – Regular/Supplementary Examinations
AUGUST 2021**

**MICROCONTROLLERS AND APPLICATIONS
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) Draw the flag register of 8086 microprocessor and explain the function of each flag.
- b) Compare minimum and maximum mode operations of 8086 microprocessor.
- c) Find the physical address of the memory locations referred by the following instructions, when DS=BC00H, SI=0023H, BX=0012H
 - i) MOV AL,[SI]
 - ii) MOV [BX][SI], DL
- d) Explain the differences between 8086 procedure call and macro call.
- e) Describe the general purpose registers in 8051.
- f) List the addressing modes for 8051 microcontroller.
- g) Write a program to see if bits 0 and 5 of register r1 are set. If they are not, make them so and save it in r0.
- h) Describe modes of timers in 8051.
- i) What are the steps followed to service an interrupt?
- j) Explain synchronous data transmission.
- k) Draw the diagram for interfacing 7 segment display with 8051.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Draw the minimum mode pin diagram and explain the function of each pin in detail. 8 M
- b) Explain the internal hardware architecture of 8086 microprocessor with neat diagram? 8 M
3. a) Explain Data transfer and branch instructions for 8086 microprocessor? 8 M
- b) Write an 8086 ALP to find the sum of numbers in the array of 10 elements using 8086? 8 M
4. a) Explain about the register banks and SFR in 8051? 8 M
- b) Explain different types of instruction sets of 8051 with examples? 8 M
5. a) Write an ALP to convert ASCII to HEXA conversion, HEXA to ASCII conversion using 8051 instruction set? 8 M
- b) Write an 8051 ALP for finding average of two BCD numbers and convert them to hex. 8 M

6. a) Explain how to generate 100 kHz square wave with timer 0 in mode 2. 8 M

b) Draw the interfacing of 16k memory with 8051 and explain. 8 M