

Code: EE6T3

III B.Tech - II Semester – Regular/Supplementary Examinations March 2020

**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) What are the BIU functions of 8086 microprocessor.
- b) Calculate the physical address for given data CS:IP  
(2000:2000)
- c) Differentiate Macros and Procedures.
- d) Define assembler directive and give suitable example for  
Data Storage Directive.
- e) Draw the A/D interface to 8086 microprocessor.
- f) List the features of DMA Controller Intel 8257.
- g) Give the procedure to select the register banks of 8051  
microcontroller.
- h) What is the need of EA signal of 8051 microcontroller
- i) What are the differences between serial and parallel  
communication.
- j) Show how LED can be interfaced to 8051 microcontroller  
with neat diagram.
- k) Differentiate between timer and counter.

## PART – B

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

3 x 16 = 48 M

2. a) Explain registers of 8086 microprocessor. 8 M
- b) Determine the 8086 operations for the given set of signals  
M/IO,  $\overline{RD}$ ,  $\overline{WR}$ ,  $\overline{READY}$ . 8 M
3. a) Write an ALP in 8086 to determine average of n-8 bit numbers. 8 M
- b) Explain arithmetic instructions of 8086 Microprocessor. 8 M
4. a) Develop an ALP in 8051 to perform addition of BCD numbers and the result must be in BCD form. 8 M
- b) Explain the addressing modes of 8051 microcontroller. 8 M
5. a) Develop an ALP to initialize interrupts with timer/counter 1 having highest priority and external interrupt 0 having next priority. 8 M
- b) Design an serial transmitter to transmit 50 characters using 8051 with a baud rate of 9600 and write the necessary software program. 8 M

6. a) Develop a program to rotate the stepper motor continuously in clock wise direction by interfacing stepper motor module to microprocessor/microcontroller. 8 M

b) Write an ALP to generate 50% duty cycle wave form using D/A converter module. 8 M