

2074  
B. E. (Information Technology)  
Third Semester  
ESC-301: Digital Electronics

Time allowed: 3 Hours

Max. Marks: 50

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

x-x-x

I. Attempt the following:-

- a) Multiplexer
- b) Logic variable
- c) Error codes
- d) Need of registers
- e) Flash memory
- f) ASCII
- g) Next state decoder
- h) RAM
- i) Need of state reduction
- j) Need of counters

(10x1)

**UNIT - I**

- II. Design Multiplexer with the help of diagrams. (10)
- III. Implement the following two Boolean functions with a PLA:  
 $F1(A,B,C) = \Sigma(0,1,2,4)$   
 $F2(A,B,C) = \Sigma(0,5,6,7)$  (10)
- IV. Design Synchronous counters with and without lockout conditions. (10)

**UNIT - II**

- V. Explain R-2R Ladder type D/A converter. (10)
- VI. Explain digital logic families. Also compare characteristics of TTL, ECL, MOS and CMOS logic circuits. (10)
- VII. a) Briefly explain the state reduction and assignment rules for synchronous sequential circuit. (5)  
b) Explain various characteristics of digital circuits. (5)

x-x-x