

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

1. Attempt the following:-

- (a) Express the number 3E8A.2F3 in binary form
  - (b) Explain Propagation delay in digital IC's.
  - (c) Define race condition in flip flops
  - (d) What does the base and radix of a number system indicate.
  - (e) Differentiate between combinational logic circuit and sequential logic circuit
- (5x2)

UNIT - I

2. (a) Design a 4 input Priority Encoder.
- (b) Discuss Fanout and Totem Pole output for TTL IC.
- (6,4)
3. (a) Minimize and implement the following using k map.
- $F(A,B,C,D) = \sum m(1,4,7,10,13) + \sum d(5,14,15)$
- (b) Discuss Adder with Look Ahead Carry.
- (5,5)
4. (a) What is the Modulus of a counter? Discuss operation of a Johnson Counter.
- (b) Design a Mod-6 counter using T flip flop's.
- (4,6)

UNIT - II

5. (a) Convert a D flip flop to JK flip flop.
- (b) Discuss Successive Approximation Register
- (6,4)
6. (a) How PLA's are used to implement combinational and sequential logic circuits.
- (b) Discuss Dual Slope Analog to Digital Converter.
- (4,6)
- 7 Discuss any two:
- (a) Universal Register
  - (b) Reading and Writing operation in RAM
  - (c) Comparator

(5,5)

x-x-x