

2056

B.E. (Electrical and Electronics Engineering)

Fourth Semester

PC-EE-4403: Digital Electronics

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 all questions:

- (a) What do you understand by Mod of a counter?
- (b) Explain Propagation delay in digital IC's.
- (c) What do you understand by the term 'multiplexer tree'?
- (d) What is the difference between a Ring counter and a Johnson counter?
- (e) Differentiate between combinational logic circuit and sequential logic circuit. (5x2)

UNIT - I

- 2. (a) Design a 2bit magnitude comparator.
- (b) Convert (i) 163.875_{10} to Binary (ii) 2598.675 to Hex (6,4)
- 3. (a) Minimize and implement the following using k map

$$F(A,B,C,D) = \sum m(2,3,4,5,13,15) + \sum d(8,9,10,11)$$
- (b) Design a Full Adder circuit. (5,5)
- 4. (a) Convert T flip flop to (i)SR flip flop, (ii) JK flip flop.
- (b) Discuss Preset and Clear inputs in flip flops. (6,4)

UNIT - II

- 5. (a) Design a synchronous Mod 6 Counter using JK flip flops.
- (b) Discuss the specifications of a D/A converter. (6,4)
- 6. (a) Discuss internal memory organization of a 16x4 memory IC
- (b) Explain Coding, Quantization, and Quantization error in ADCs. (6,4)
- 7 Discuss any two of the following:-
 - (a) Universal Register
 - (b) Dual Slope Analog to Digital Converter.
 - (c) FPGA (5,5)

x-x-x