

DIGITAL ELECTRONICS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 2 = 20)

- 1 Convert the binary number $(1011.10)_2$ to decimal number system.
- 2 What is a BCD Code⁰
- 3 Define a Gate.
- 4 Give the truth table of XAND gate.
- 5 Define a minterm.
- 6 What is a Quad?
- 7 What is a half adder⁰
- 8 What is a combinational circuit?
- 9 Name the types of sequential circuits.
- 10 Draw the truth table of clocked 'D' flip flop.

SECTION - B (25 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

- 11 a Convert the decimal number $(131,5625)_{10}$ into binary number system.
OR
Write short notes on 8421 code.
- 12 a Explain how a XNOR gate can be used to implement a word comparator.
. ^w OR
b What is the procedure to be followed for changing from positive to negative logic.
- 13 a Simplify: $Y = (A + B)(A - B \kappa A + B)$
OR
. b State and prove De-Morgans theorem.
- 14 a Write short notes on half adder.
OR
b Explain about Octal to Binary encoder.
- 15 a Explain the working of a T-ff.
OR
b Write short notes on clocks.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Convert the following:
(i) $(3573)_8 = ()_2$ (ii) $(C4D2)_{16} = ()_{10}$
(hi) $(5AB.IC)_{16} = ()_{10}$ (iv) $(249.16)_{10} = ()_6$
- 17 Describe the basic gates and universal gates with its graphical symbol and truth table.
- 18 Simplify the Boolean function using K. Map
 $F(A,B,C,D) = \sum (0,2,3,5,7,8,9,10,11,13,15)$
- 19 With a logical diagram and truth table explain 3-to-8 line decoder.
- 20 Write in detail about Ring counter and Johnson Counter.