560

15122

I Semester B.C.A. Examination, December 2018
(CBCS) (Fresh)
COMPUTER SCIENCE
Digital Electronics

Time : 3 Hours

Max. Marks : 70

Instruction : *Answer **all** the Sections.*

SECTION – A

I. Answer **any ten** of the following. **(10×2=20)**

1) State Ohm's law.

2) Define cycle and periodic time with respect to AC waveform.

3) What is biasing ? Explain reverse bias.

4) Differentiate Fan-In and Fan-Out.

5) Define RMS value.

6) Find the 2's complement of $(11010)_2$.

7) Define min term and max term.

8) What is AND gate ? Write its truth table and logic symbol.

9) What is sequential logic circuit ? Give an example.

10) What is half adder ? Write its logic circuit.

11) What is conductor and insulator ?

12) Define shift register.

SECTION – B

II. Answer **any five** of the following questions. **(5×10=50)**

13) a) State and explain Norton's theorem. **5**

b) Explain Forward and Reverse bias. **5**

P.T.O.

14) a) What is rectifier ? Explain full wave rectifier. 5

b) Explain Kirchoff's current and voltage laws. 5

15) a) Differentiate intrinsic and extrinsic semiconductors. 5

b) Mention and explain briefly about the applications of diode. 5

16) a) State and prove Demorgan's theorem with truth table. 5

b) Simplify AB + A(B + C) + B (B + C) using Boolean algebra and draw logic circuit for the simplified equation. 5

17) a) Simplify the SOP minterm expression $Y = \sum m\,(1, 5, 7, 8, 9, 13) + \sum d\,(3, 12)$ using K - map. 5

b) Realize all basic gates by using NOR gate. 5

18) a) Explain Full Adder with truth table and logic circuit. 5

b) What is multiplexer ? Explain 4 × 1 multiplexer. 5

19) a) Explain master-slave JK Flip Flop with block diagram. 5

b) Explain SISO shift register. 5

20) a) What is energy band ? Explain all the three energy bands. 5

b) Subtract $(29)_{10} - (7)_{10}$ using 2's complement method. 5