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Reg. No. | | | | | | | | | |

I Semester B.C.A. Degree Examination, August - 2021

COMPUTER SCIENCE

Digital Electronics

(CBCS Scheme Freshers and Repeaters)

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

Answers **all** the questions.

SECTION - A

Answer any **Ten** of the following questions. **(10×2=20)**

1. Define the terms Short circuit and open circuit.
2. What is conduction band and forbidden band?
3. What do you mean by doping?
4. Differenciate between half wave rectifier and full wave rectifier.
5. Find the 2's complement of $(1010011)_{(2)}$.
6. Simplify the expression $A\overline{B}+C+\overline{D}$.
7. Write the truth table, logic Symbol and expression for XOR gate.
8. What is combinational logic circuit?
9. Write the truth table of full adder.
10. Give any two differences between latch and flip flop.
11. What is conductor and insulator?
12. What do you mean by Shift register?

SECTION - B

Answer any **Five** of the following. **(5×10=50)**

13. a) Briefly explain voltage divider circuit. **(5)**
    b) State and explain Kirchoff's current Law. **(5)**
14. a) What is rectifier? Explain half wave rectifier. **(5)**
    b) Describe Bohr's atomic model. **(5)**
15. a) Write the difference between intrinsic and extrinsic Semi conductor. **(5)**
    b) Explain p-n junction with a neat diagram. **(5)**

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16. a) Convert $(9c)_{16}$ into decimal and octal. (5)

b) Subtract $18_{(10)}$ from $32_{(10)}$ using 2's complement method. (5)

17. a) Minimize the following SOP expression using K-map. (6)

$$F(A,B,C,D) = \sum(2,5,7,9,11,12,15) + \alpha(3,8,13)$$

b) State and prove Demorgan's Theorem. (4)

18. a) Define Universal gate. Realize NOR as universal gate. (5)

b) With a neat diagram and truth table explain the working of half adder. (5)

19. a) Define Flip Flop. Explain the working of RS flip flop with a neat diagram. (5)

b) Briefly explain the operating characteristics of flip flop. (5)

20. a) Explain the working of SIPO shift register with the necessary diagram. (6)

b) Write the applications of shift register. (4)
