

65122

**First Semester B.C.A. Degree Examination,  
November/December 2019**

(CBCS Scheme – Freshers & Repeaters)

**Computer Science**

**DIGITAL ELECTRONICS**

Time : 3 Hours]

[Max. Marks : 70

Instructions to Candidates : Answer ALL Sections.

SECTION – A

I. Answer any **TEN** questions :

(10 × 2 = 20)

1. State Ohm's law.
2. Define the term time period and frequency.
3. What is a semiconductor? Give an example.
4. State Norton's theorem.
5. What is doping?
6. Find the 2's complement of 00110011.
7. Show that  $C + \overline{BC} = 1$ .
8. Convert  $(B64.53)_{16}$  to Binary.
9. What is a combinational circuit? Give an example.
10. Define encoder and decoder.
11. Write the truth table and logic symbol of X-OR gate.
12. State any two important characteristics of flip-flop.



## SECTION - B

Answer any **FIVE** questions :

(5 × 10 = 50)

13. (a) State and explain Kirchoff's voltage law. (5)  
 (b) Briefly explain the current divider circuit with example. (5)
14. (a) State and explain super position theorem. (5)  
 (b) State and explain Thevenin's theorem. (5)
15. (a) Write any five differences between intrinsic and extrinsic semi conductors. (5)  
 (b) Explain p-n junction with a neat diagram. (5)
16. (a) Convert  $(BCA)_{16} = ( )_2, ( )_8, ( )_{10}$ . (5)  
 (b) Explain briefly about BCD code with an example. (5)
17. (a) Simplify  $F(ABCD) = \sum m(1, 3, 7, 11, 15) + \sum d(0, 2, 5)$  (5)  
 (b) Prove the following :  
 (i)  $AB + A(B + C) + B(B + C) = B + AC$   
 (ii)  $A + \bar{A}B = A + B$ . (5)
18. (a) What is universal gate? Realize NAND as universal gate. (5)  
 (b) Draw a neat circuit diagram of FULL ADDER and explain the working. (5)
19. (a) Design a 4 to 1 multiplexer circuit and explain. (5)  
 (b) Explain the working of RS flipflop with truth table and timing diagram. (5)
20. (a) Explain SISO and PIPO shift registers with a neat diagram. (6)  
 (b) Write a note on applications of shift registers. (4)

