UN – 311

I Semester B.C.A. Degree Examination, November/December 2015
(CBCS) (Y2K14 Scheme)
BCA – 104 T : DIGITAL ELECTRONICS

Time : 3 Hours

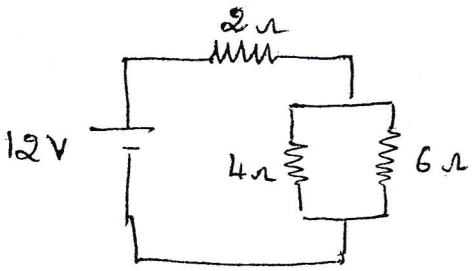
Max. Marks : 70

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

SECTION – A

Answer **any ten** questions : **(10×2 = 20)**

1. Find the equivalent resistance of the combination.



2. What is rms value ?
3. State Kirchoff's current law.
4. What is forbidden energy gap ?
5. What is breakdown voltage in PN junction ?
6. Write the difference between Analog and Digital technologies.
7. Convert 10011 from Gray to Binary.
8. Simplify the Boolean equation $\overline{A\overline{B} + C\overline{D} + EF}$.
9. What is a combinational circuit ?
10. What is magnitude comparator ?
11. Write applications of Flip Flop.
12. What is a shift register ?

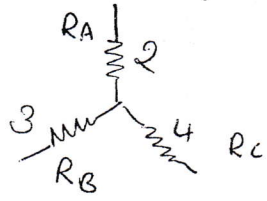
P.T.O.

SECTION – B

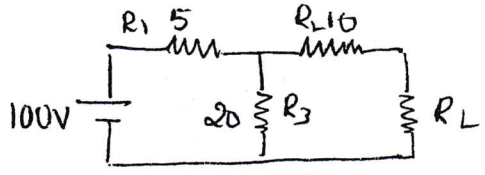
Answer **any five** questions : **(5×10 = 50)**

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

    b) Find delta equivalent of the following circuit. 5



14. a) Find the current through R_L by Thevenin's theorem. 5



    b) Draw and explain V-I characteristics of PN-junction. 5

15. a) Explain the working of center tap full wave rectifier. 5

    b) Discuss the merits and demerits of full wave and half wave rectifier. 5

16. a) State and prove DeMorgans theorem. 6

    b) Express the following Boolean expression in terms of sum of minterms

    $F = A\overline{B} + C$. 4

17. a) What is K-map and explain various types of grouping. 6

    b) Simplify K-map

    $F(ABCD) = \Sigma m\,(7, 9, 10, 11, 12, 13, 14, 15)$. 4

18. a) Draw the logic circuit whose Boolean equation is $Y = \overline{A + B} + \overline{C}$. 4

    b) What are universal gates ? Explain universal property of NAND gate. 6

19. a) Explain Full adder with neat circuit diagram. 5

    b) With neat circuit diagram explain Master Slave JK flip flop. 5

20. a) Draw the pin diagram of 7476. 4

    b) Explain about PISO register. 6