



7. In a series-parallel circuit, any two resistance in the same current path may be connected in
- (a) Series with each other                      (b) Parallel with each other  
(c) Series with the voltage source            (d) Parallel with the voltage source
8. The time constant of  $RL$  series circuit is
- (a)  $L$                       (b)  $R/L$                       (c)  $L/R$                       (d) none of these
9. Minimum number of Wattmeter required to measure power in  $3\phi$ , 3 wire unbalanced systems is
- (a) one                      (b) two                      (c) three                      (d) anyone
10. For a 3 - phase load balanced condition, each phase has the same value of
- (a) Impedance                      (b) Resistance  
(c) Power factor                      (d) All of these

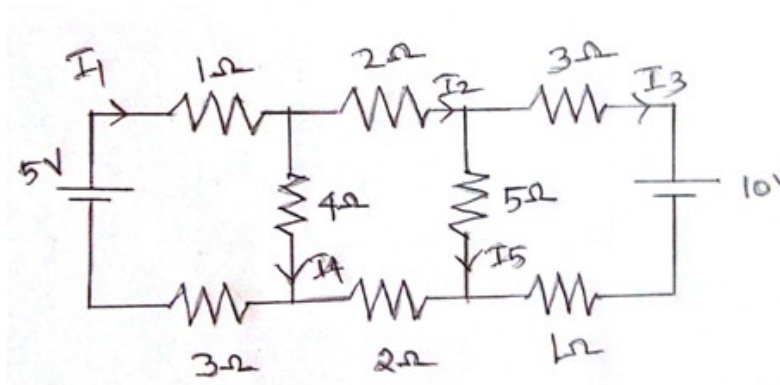
PART - B (5 x 2 = 10 Marks)

11. Define crest factor.
12. State superposition theorem.
13. Define the term coefficient of coupling.
14. What is the time constant of a series  $RC$  circuits?
15. Define phase sequence.

PART - C (5 x 16 = 80 Marks)

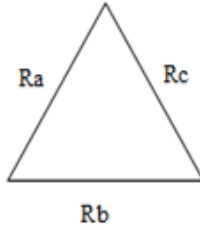
16. (a) Find the current in all the branches of the circuits given below by nodal method.

(16)

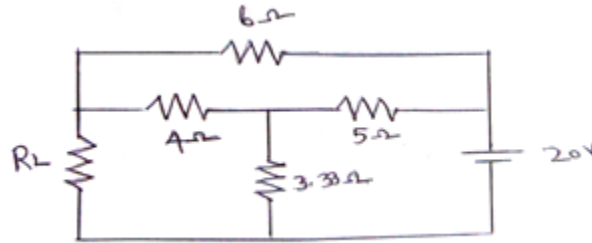


Or

(b) Derive for a given delta connected system the equivalent value in star position. (16)

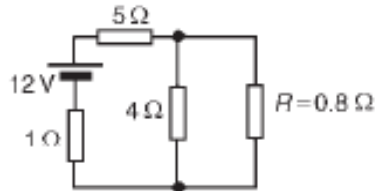


17. (a) Find the value of  $R_L$  in the circuits given for maximum power transfer to it. Find maximum power. (16)



Or

(b) For the network shown in Fig. Determine the current in the  $0.8\Omega$  resistor using Thevenin's theorem. (16)



18. (a) Derive the equation for band width =  $R/2\pi L$ . (16)

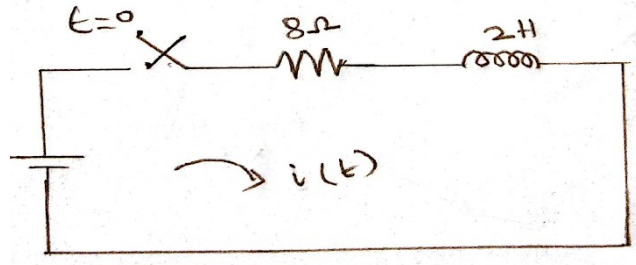
Or

(b) Derive for the single tuned coupled circuits maximum output at resonance. (16)

19. (a) Derive the equation for  $RC$  series circuit time constant both for charging and discharging condition. (16)

Or

- (b) In the circuit given below, find the transient current and the initial rate of growth of current when the switch is closed at  $t = 0$ . (16)



20. (a) Draw the circuit and prove that two Wattmeter method will measure 3  $\phi$  power. (16)

Or

- (b) Three identical coils each having a resistance of  $20 \Omega$  and a reactance of  $20 \Omega$  are connected in (i) Star (ii) Delta across 440 V, 3 phase supply. Calculate for each case, line current and reading in each of the wattmeter connected to measure power. (16)
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