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

Question Paper Code : 53553

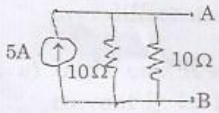
B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017
Second Semester
Electrical and Electronics Engineering
EE 6201 – CIRCUIT THEORY
(Common to Biomedical Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Instrumentation and Control Engineering, Medical Electronics)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. When do you need to follow super node and super mesh analysis ?
2. Distinguish between reactive power and apparent power and real power.
3. Define reciprocity theorem.
4. Find the Thevenin's resistance of the given circuit below



5. What is the significance of quality factor in the resonance circuit ?
6. What do you mean by coefficient of coupling.
7. Distinguish between natural response and forced response.
8. What is the relation between z and h-parametre ?
9. Specify the advantages of three phase systems over single phase systems.
10. Give the expression for power in a three phase system.

PART – B (5×16=80 Marks)

11. a) The RL varies in the step of 2 ohm for the circuit shown below. Find out the minimum and maximum current through RL as well as potential difference on RL. (16)

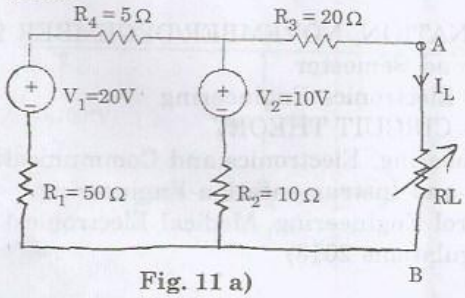


Fig. 11 a)

(OR)

b) Find the power dissipated by 8 ohms resistor and current supplied by 10V source. (16)

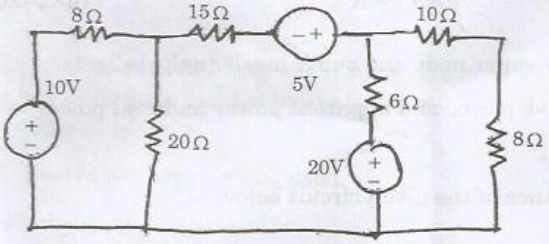


Fig. 11 b)

12. a) Find all the nodal voltages in the given circuit. (16)

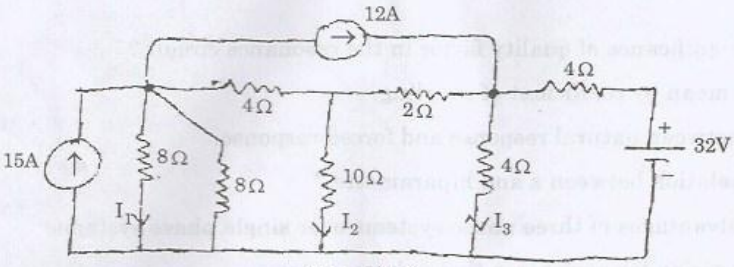


Fig. 12 a)

(OR)

b) Find the voltage across 18 ohm resistor. **(16)**

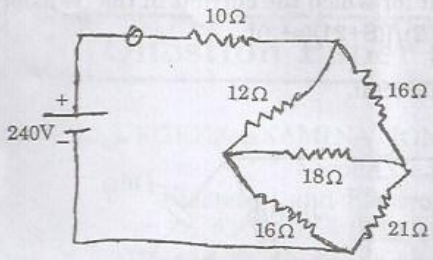


Fig. 12 b)

13. a) Find the value of load resistor such that maximum power is delivered to it. **(16)**

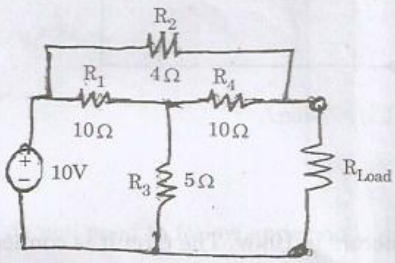


Fig. 13 a)

(OR)

b) Derive an expression to analyze the amplification of a single tuned circuit over different level coupling coefficients. **(16)**

14. a) In the circuit shown below, The switch S is closed at t = 0, determine the current I_s, I_1, I_2 at 10ms and after 100ms. **(16)**

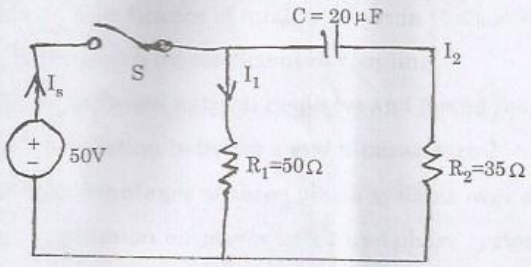


Fig. 14 a)

(OR)

b) Find the time response of a circuit for which the current in the transform circuit is given by $i(s) = (V/R)(s + 2)/[(S+21)(s+3)]$. **(16)**

15. a) Find the i_a, i_b and i_c for the given circuit. **(16)**

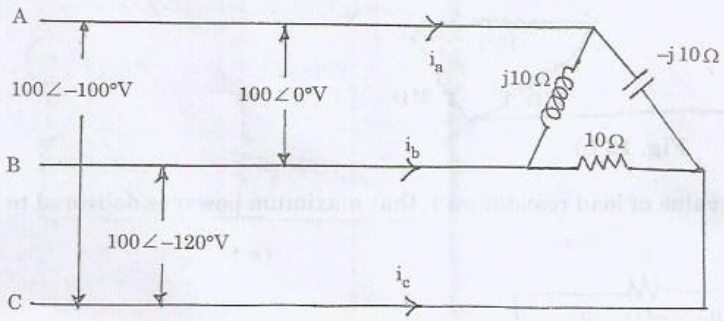


Fig. 15 a)

(OR)

b) i) Total power read by a two wattmeters is 10kw. The circuit is connected to a 400V supply and the power factor is 0.7. Find the power read by individual wattmeter. **(10)**

ii) Derive the expressions used. **(6)**