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19/12/15 AN

Reg. No. : 

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**Question Paper Code : 21496**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Second Semester

Electrical and Electronics Engineering

EE 2151/EE 25/EE 1151/080280005/10133 EE 205 — CIRCUIT THEORY

(Common to Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State Ohm's law.
2. State Kirchoffs laws.
3. Write the Norton's theorem.
4. State Maximum power transfer theorem.
5. Define Quality factor of inductance.
6. Define self inductance of a coil.
7. What is transient response?
8. Write the expression for complete solution of a current in R-C series circuit with sinusoidal input.
9. Draw the circuit diagram for a three phase delta connected source and a star connected load.
10. Write the expression for power for single phase and three phase AC circuit.

PART B — (5 × 16 = 80 marks)

11. (a) Find the current in 10 Ohm resistance,  $V_1$  and source voltage  $V_s$  in the circuit shown in Figure 11(a). (16)

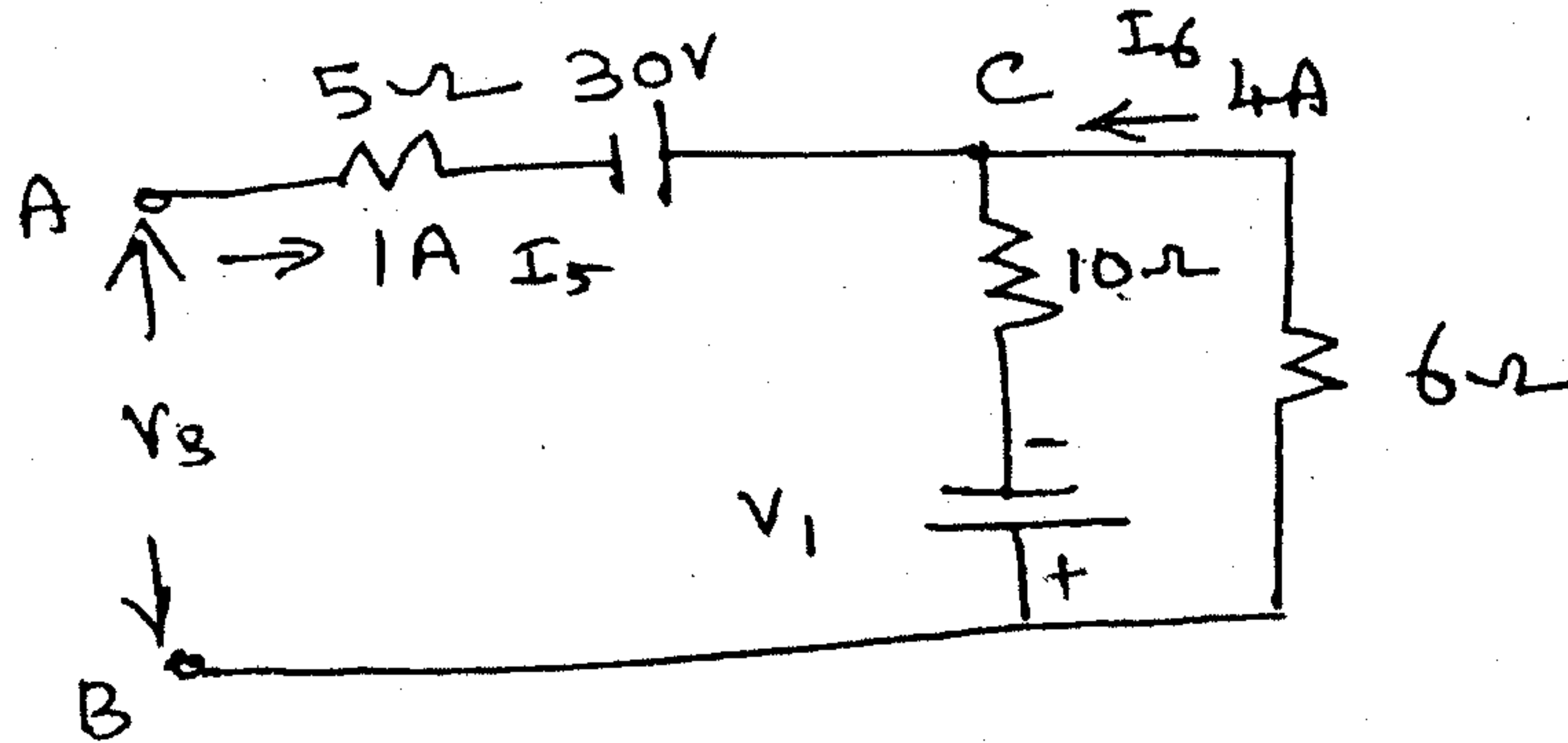


Figure 11(a)  
Or

- (b) Write the node voltage equations and determine the currents in each branch for the network shown in Figure 11(b). (16)

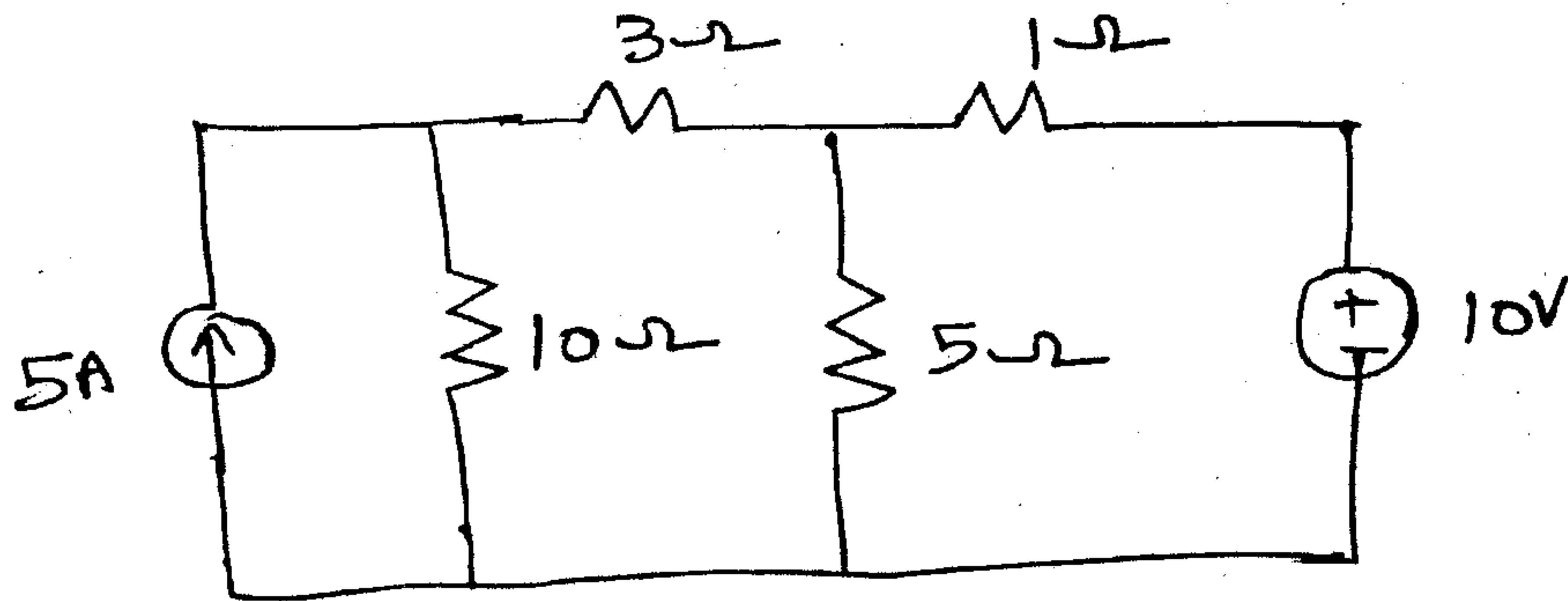


Figure 11(b)

12. (a) Obtain the star connected equivalent for the delta connected circuit shown in Figure 12(a). (16)

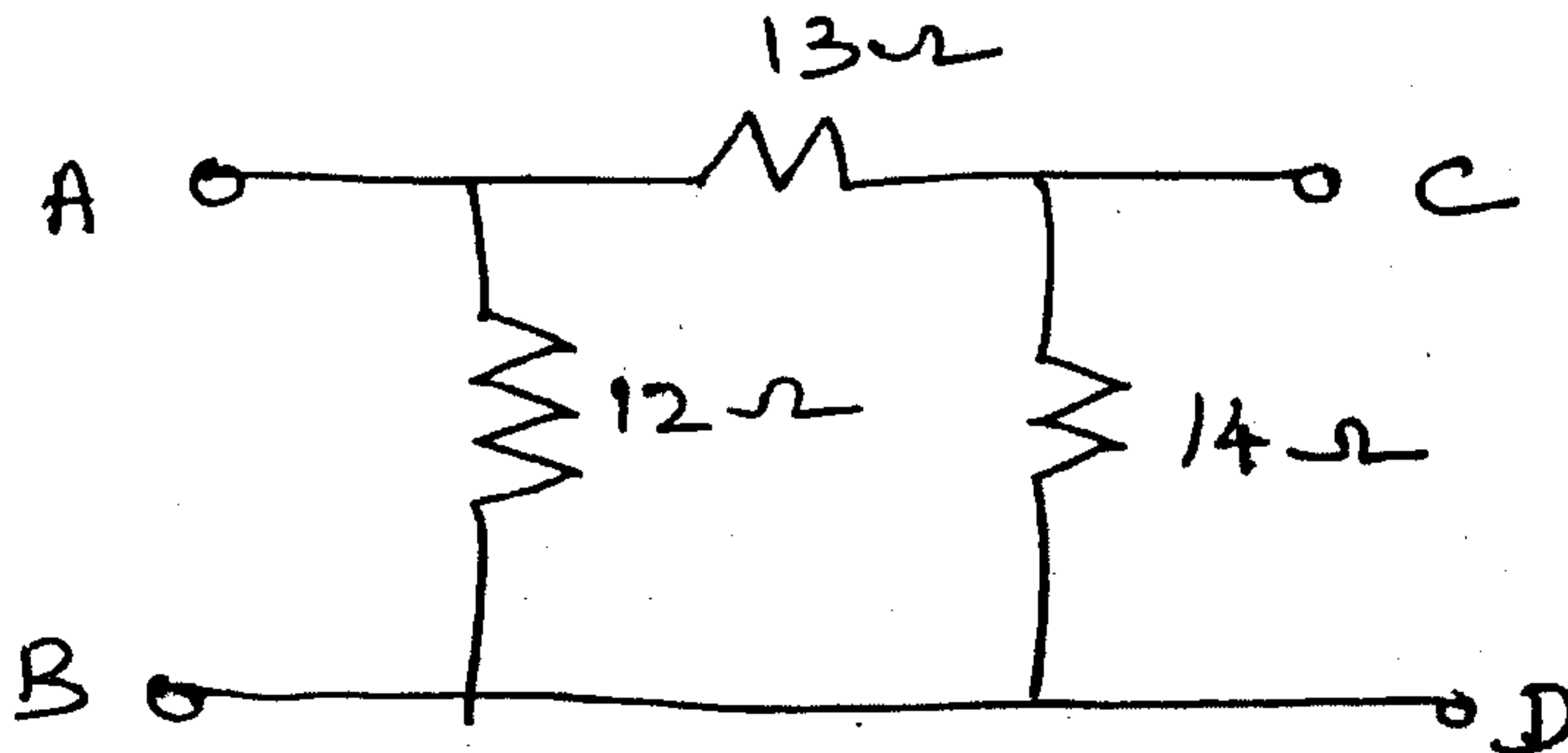
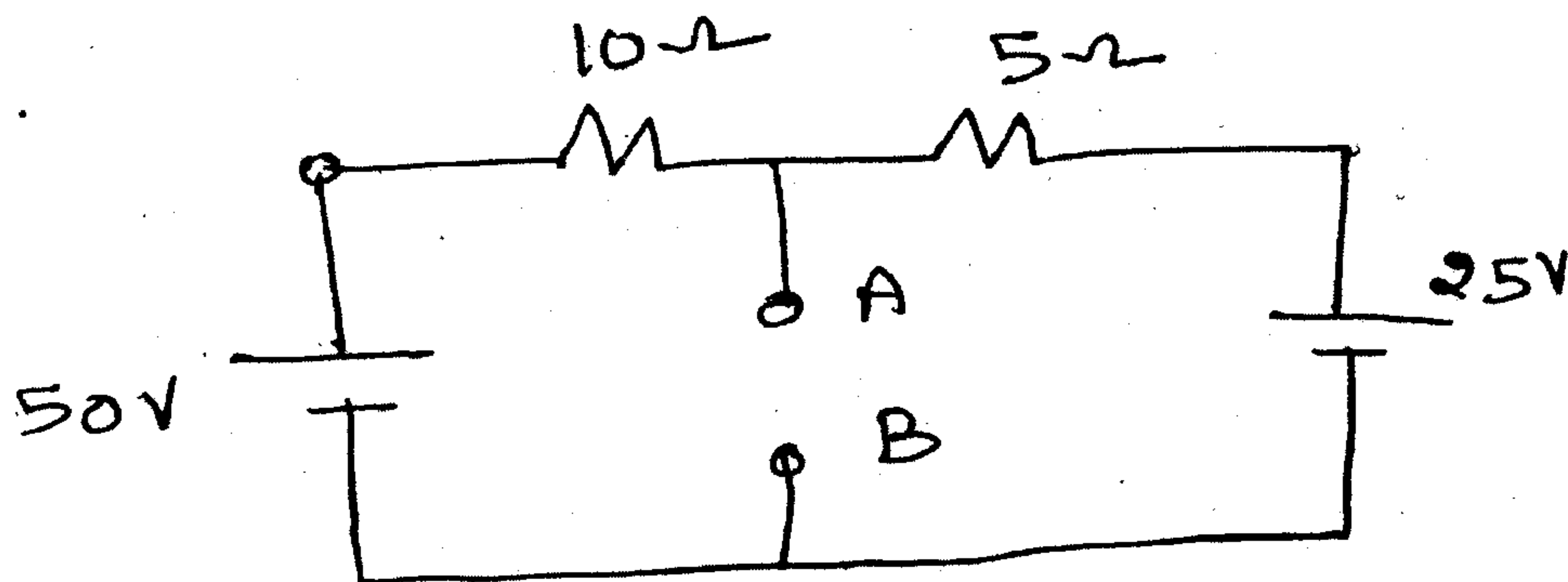


Figure 12(a)  
Or

- (b) (i) State Thevenin's theorem. (6)

- (ii) Determine the Thevenin's equivalent circuit across AB for the given circuit shown in figure. (10)



13. (a) Obtain the expression for voltage, current and frequency in a series resonant circuit and draw its frequency response curve. (16)

Or

- (b) Explain the single tuned circuit and obtain expression for maximum amplification. (16)

14. (a) Obtain the expression for current in DC response of an RL series circuit. (16)

Or

- (b) Obtain the expression for current in Sinusoidal response of an RL series circuit.

15. (a) In a three phase three wire balanced system supplying power to a balanced three phase delta load find out the currents in all branches and lines. (16)

Or

- (b) Describe the three phase power measurement by two wattmeter method. (16)