

PART B — (5 × 16 = 80 marks)

11. (a) (i) Find the current through each resistor of the circuit shown in Fig. 11 (a) (i) using nodal analysis. (10)

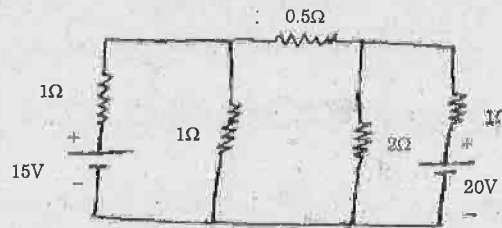


Fig.11(a) (i)

- (ii) State and prove maximum power transfer theorem. (6)

Or

- (b) (i) Find the Thevenin's equivalent circuit for the network in Fig. 11 (b) (i) at terminals AB. (10)

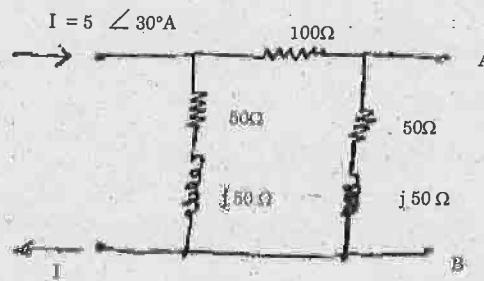


Fig.11(b) (i)

- (ii) Explain superposition theorem by assuming a suitable circuit. (6)

12. (a) Obtain expression for the instantaneous current through the RLC series circuit with sinusoidal input. (16)

Or

- (b) What is Q factor? Find value of Q factor for an inductor and capacitor, connected in series. (16)

13. (a) Derive the PN diode current equation from the quantitative theory of diode currents. (16)

Or

- (b) (i) Sketch and explain the V-I characteristics of zener diodes. (8)
 (ii) Explain briefly the following :
 (1) Avalanche breakdown (4)
 (2) Zener breakdown. (4)

14. (a) (i) Draw and explain the characteristics of PNP transistor in CB configuration. (8)
- (ii) Compare CB, CE and CC transistor configurations. (8)

Or

- (b) (i) Describe the construction, operation and characteristics of N-channel JFET. (8)
- (ii) Draw the structure of N-channel depletion type MOSFET and explain its operation and characteristics. (8)
15. (a) (i) Explain the construction, operation and characteristics of UJT. (8)
- (ii) Sketch the symbol of DIAC and explain its operation and characteristics (8)

Or

- (b) (i) Discuss the construction and operation of
- (1) Dynamic Scattering LCD (4)
- (2) Field Effect LCD. (4)
- (ii) What is the basic property of a Photoconductive cell? With the help of sketches, explain its construction, symbol and operation. (8)
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