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

Question Paper Code : 13007

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

Third Semester

Electronics and Communication Engineering

EC 1202 — CIRCUIT ANALYSIS

(Regulation 2007)

Time : Three hours Maximum : 100 marks

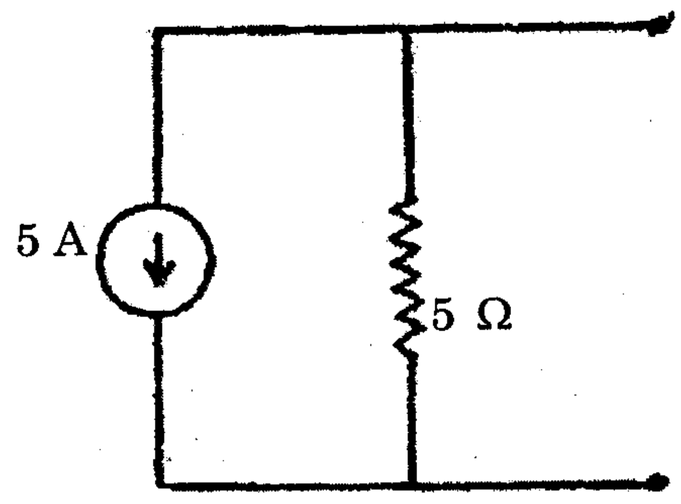
Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State Kirchoff's laws.

2. What are band width and selectivity?

3. Convert the following current source into voltage source.



4. State Tellegen's theorem.

5. Draw the frequency response of RL series circuit.

6. What do you understand from the term time constant?

7. What is meant by double tuned circuits?

8. Why is the power in a three phase circuit the same in star as well as delta connected load?

9. What is the need for impedance matching?

10. What are the characteristics of ideal filter?

PART B — (5 × 16 = 80 marks)

11. (a) (i) For the network shown in Fig. 11(a) (i) obtain the load current and the power delivered to the load. (8)

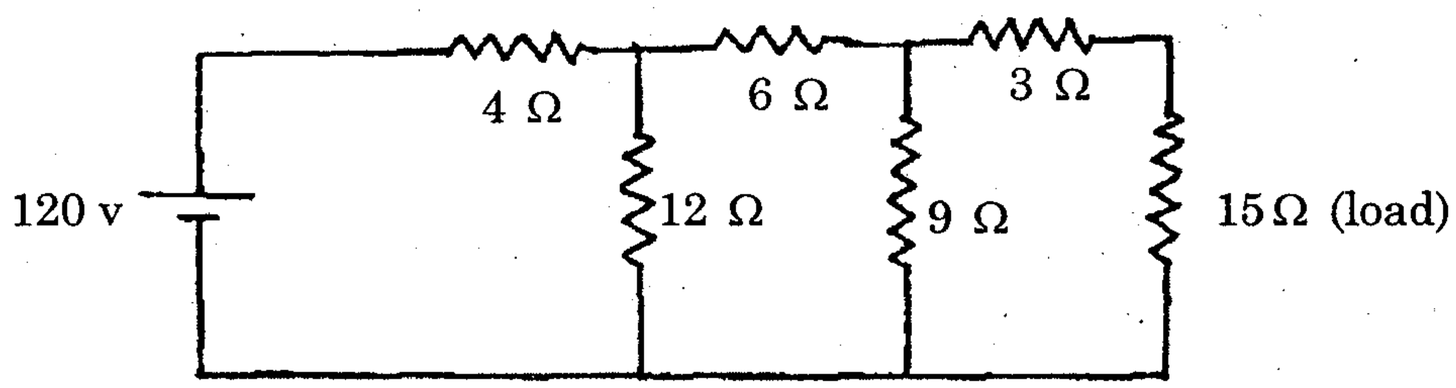


Fig. 11(a) (i)

(ii) Determine the voltage V_{AB} of the network shown in fig. 11(a) (ii). (8)

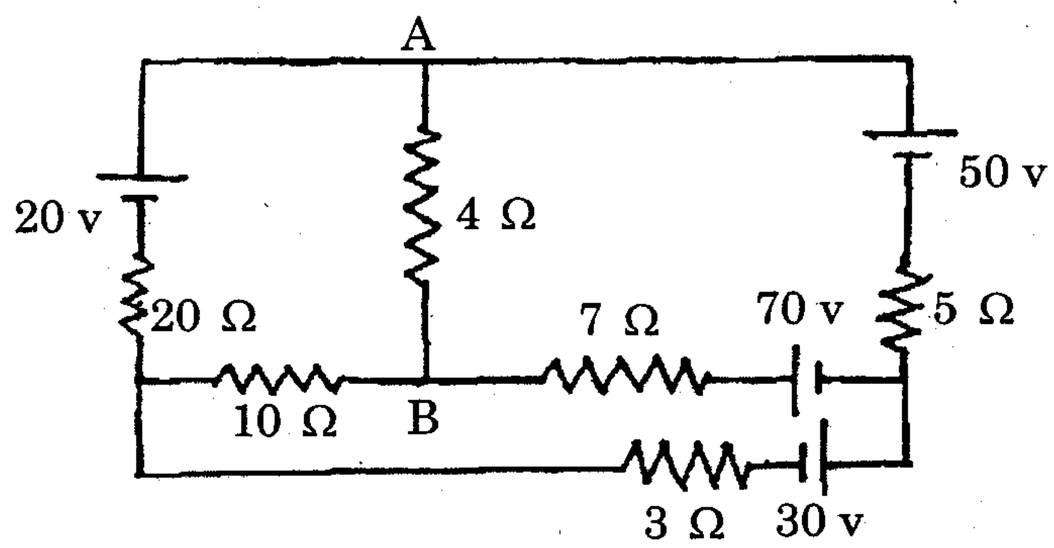


Fig. 11(a) (ii)

Or

(b) (i) Define bandwidth. Also derive an expression for bandwidth series resonant circuit. (10)

(ii) A series RLC circuit has $R = 5\ \Omega$, $L = 40$ mH and $C = 1\,\mu F$. Calculate :

(1) The Q of the circuit

(2) Resonant frequency. (6)

12. (a) (i) Use a star to delta transformation to find the voltage V in the circuit shown in Fig. 12 (a) (i). (8)

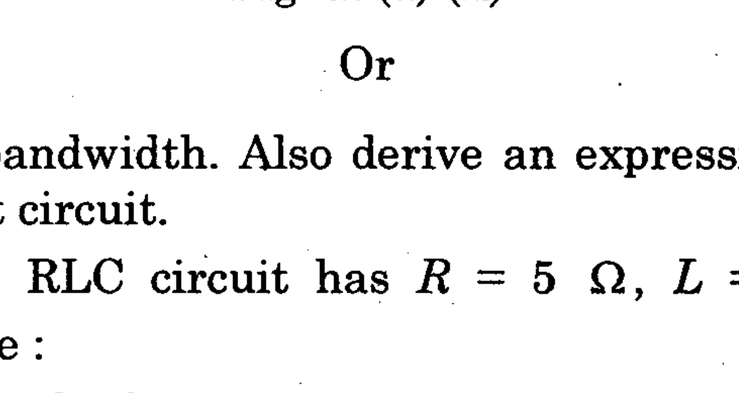


Fig. 12 (a) (i)

14. (a) A series-tuned antenna circuit consists of a variable capacitor (40 pF to 360 pF) and a 240 – μH antenna coil which has a dc resistance of 12 ohm.

(i) Find the frequency range of radio signals to which the radio is tunable.

(ii) Determine the value of Q at each end of the frequency range.

Or

(b) Explain the two wattmeter method of power measurement in a three phase circuit with neat circuit diagram and phasor diagram.

15. (a) Determine the admittance parameters of the two port network as shown in fig. 15 (a). (16)

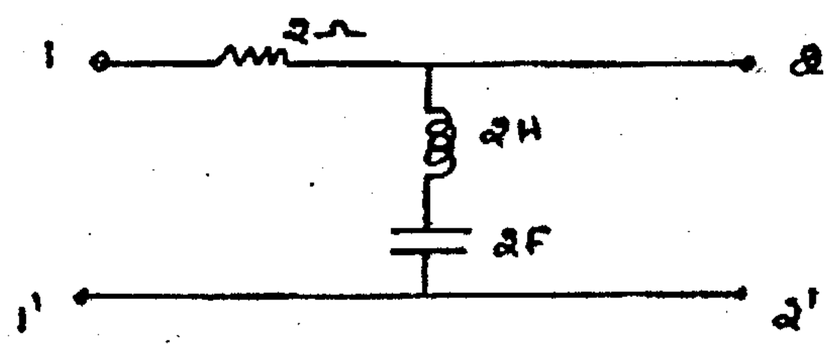


Fig. 15 (a)

Or

(b) Draw reactance curve of high pas filter. Explain variations of attenuation constant (α), phase constant (β) and characteristics impedance (Z_0) against frequency with the help of neat diagram. (16)