

00075

**B.Tech. - ELECTRICAL
ENGINEERING - III/BTCSVI/BTECVI/BTELVI**

Term-End Examination

June, 2012

BIEE-001 : Basics of Electrical Engineering

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Use of scientific calculator is allowed. All the questions are to be answered in English Language only

1. (a) Obtain the equivalent resistance at the terminal ab for each of the circuit as shown in figure (1.1) and (1.2) : **2x2.5=5**

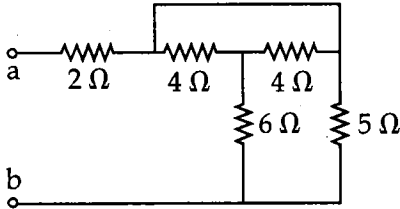


Figure (1.1)

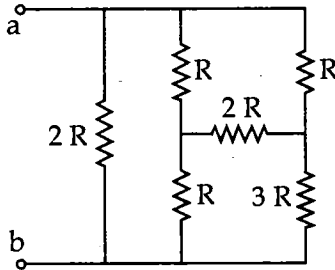


Figure (1.2)

(b) Explain Kirchoff's voltage law and Kirchoff's current law. 5

2. (a) Explain the procedure for analyzing a circuit by super position theorem. $2 \times 5 = 10$
- (b) Find Thevenin's equivalent circuit for the circuit shown in figure (2), across terminal ab.

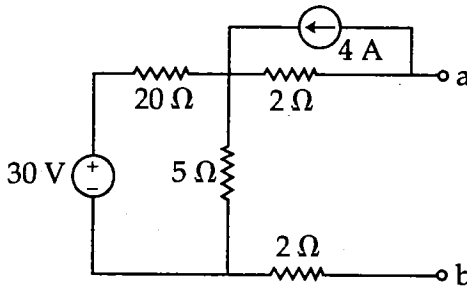


Figure (2)

3. Explain construction, working and application of Nickel - Cadmium Cells. 10
4. (a) What are the differences and similarities between electrical circuit and magnetic circuit? $2 \times 5 = 10$
- (b) Explain the B - H curve.
5. (a) State Faraday's laws of electromagnetic induction and derive the expression for the induced emf. $2 \times 5 = 10$

- (b) An air cored coil 1.5m long, 8cm in diameter has 5000 turns then calculate the inductance of the coil.
6. (a) What is meant by power factor ? What is its significance? How will you obtain power factor from KVA triangle ? 2x5=10
- (b) Calculate the rms value and average value of the current wave form shown in figure (3).

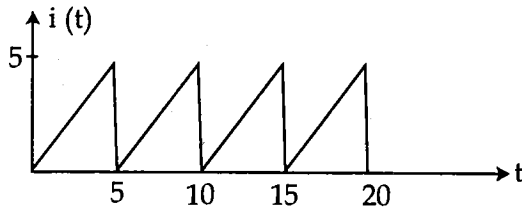


Figure (3)

7. Explain RLC series resonance, draw the phasor diagram at resonance and also find the resonant frequency. 10
8. What is a three phase system ? Give its necessity and advantages. What is meaning of phase sequence and how can it be changed ? 10
9. Derive the relationship in line current, phase current and line voltage, phase voltage in a three phase star connected and delta connected network. 10

10. Write short notes on *any two* of the following : $2 \times 5 = 10$
- (a) Primary and Secondary Cell
 - (b) Fleming's Right and left hand rules
 - (c) Self and Mutual induction
-