No. of Printed Pages : 3

BIEE-033

DIPLOMA IN - ELECTRICAL ENGINEERING

Term-End Examination

June, 2012

BIEE-033 : ELECTRICAL CIRCUIT THEORY

00445

Time : 2 Hours *Maximum Marks : 70*

Note : *All the questions are to be answered in English only. Question no. **1** is **compulsory.** Any **four** questions are to be attempted out of question **2** to **8.** Use of calculator is allowed.*

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1. Write ***True*** or ***False*** in Question No (1) :

(a) There is no relation between Thevenin's theorem and Norten's theorem. **2**

(b) A current source has internal impedance connection in series with it. **2**

(c) Q-factor of a coil is reciprocal to power factor of a coil. **2**

(d) A parallel resonance LC circuit in series with load is a band pass-filter. **2**

(e) In R-L-C circuit voltage across the resistance at resonance frequency is equal to applied voltage. **2**

(f) If power factor of circuit is unity, the reactive power is zero. **2**

(g) At very low frequency a parallel R-C behaves as almost pure capacitive circuit. **2**

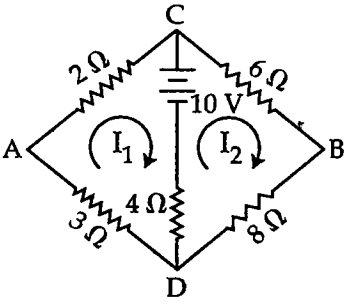
2. (a) What is active and passive Elements. What are independent Voltage source and independent Current Source. 7

(b) Derive the formula for current in Parallel circuits (Current division formula) 7

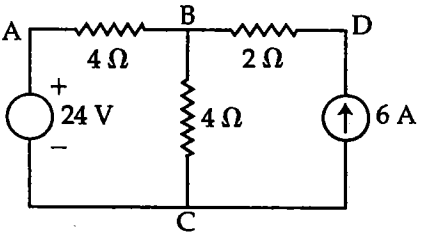
3. (a) Derive formula for Star to Delta transformation. 7

(b) Explain Thevenin's theorem. With diagram and steps to find Thevenin equivalent. 7

4. (a) Find currents in different branches, current supplied by battery and Potential difference between A and B. 7



(b) Use Superposition theorem to find currents in various branches of the circuit. 7



5. (a) What is parallel Resonance. Derive the formula for frequency and Quality factor. 7

(b) A coil of inductance 0.75H and resistance 400 Ohm is a part of a series resonant circuit having a resonant frequency of 55 Hz. If the supply is 250 V, 50 Hz find 7

(i) Current (ii) Power factor

(iii) Voltage across coil

6. (a) State with diagram. How will you measure Power of 3 phase circuit by two Wattmeter method. 7

(b) Derive the formula for Bandwidth and Quality factor for series resonance circuit. 7

7. (a) Define Power factor. Active Power, Reactive Power and Apparent Power in A.C circuit. 7

(b) Define and write formula for Impedance Parameter for two port network 7

8. Attempt ***any four*** and write short answer : **3.5x4=14**

(a) Poles and Zero in Networks.

(b) Kirchhoff's Laws

(c) Mesh and Nodal Analysis

(d) Network Synthesis

(e) Lumped Networks

(f) Source Transformation