

Time : 3 hours

Note: Answer four question only

Class : First Year – Energy Engineering Branch

Subject: Basic Electrical Engineering

Examiner : Fatin N. Abdullah



University of Technology-
Electromechanical Engineering
Dept.
Final Exam-First Attempt
2013-2014

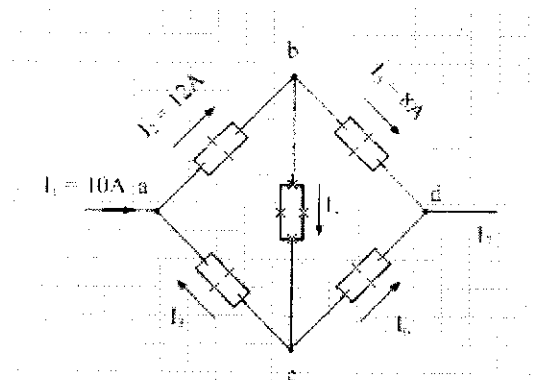
Name:

ID No.

Signature

Q1 : A) How long with a steady current of 2 A have to exist in a resistor that has 3 V across it to dissipate 12 J of energy ?

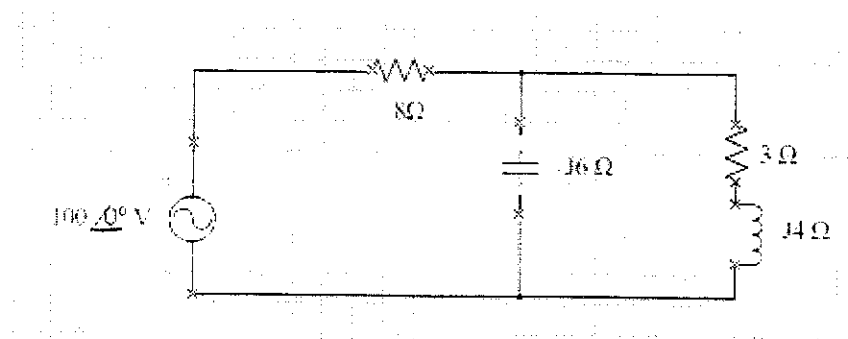
B) Find the magnitude and direction of the currents I_3 , I_4 , I_6 , I_7 ?



Q2 : A) Convert the following from the time domain to the phaser domain ?

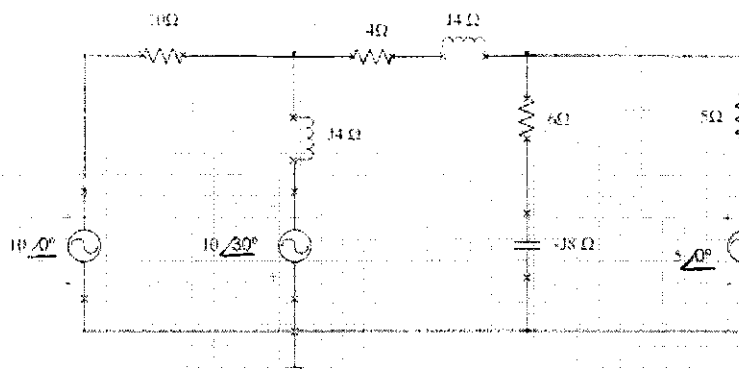
- $\sin 314 t$
- $-5 \sin (377t + 40^\circ)$
- $4 \cos (wt + 30^\circ)$

B) Find the power output of the voltage source in the circuit shown , prove that the power equals the power in the circuit resistors . Use Mesh analysis in your solution

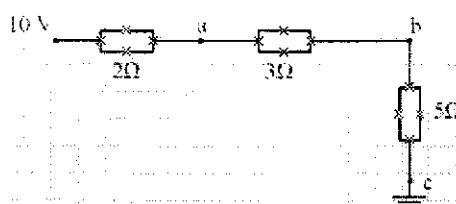


Q3: A) Drive the voltage divider rule ?

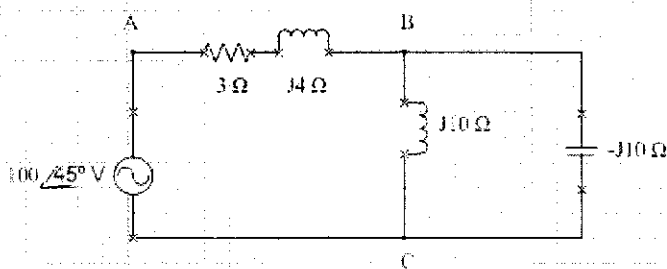
B) Write the Nodal equations for the circuit below ?



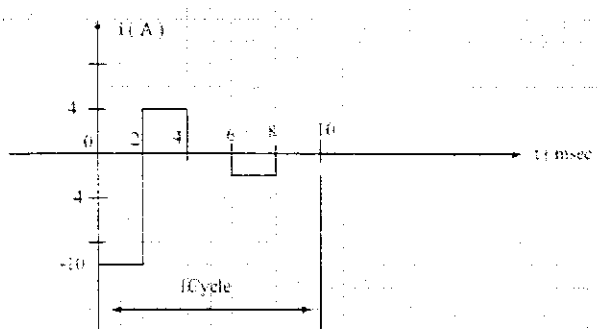
Q4: A) Find V_a , V_b , V_c , V_{ab} , V_{ac} , V_{bc} ?



B) Determine the voltage drops V_{ab} and V_{bc} in the circuit shown below , using mesh method ?



Q5 : A) Find the Average value for the wave form below ?



B) Using the determinants to find the branch currents ?

