SVKM's NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Programme: MBA Tech (All Streams) Year: I Semester: I

Academic Year: 2015-16

Batch: 2014-15
Subject: Basic Electrical Engineering

Marks: 60
Time: 10.00 am - 1.00 pm
Duration: 3 Hrs

Date: 10 June 2016

Re-Examination

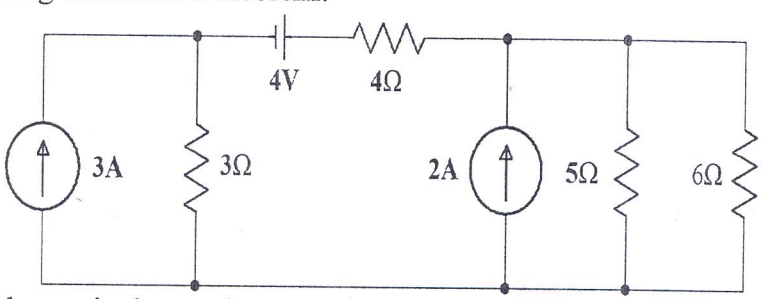
Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Books, which is provided for their use.

1. Question No. 1 is compulsory.
2. Out of remaining six questions, attempt any four questions.
3. In all five questions to be attempted
4. Answer to each new questions to be started on a fresh page.
5. Assume suitable data if necessary with proper justifications.

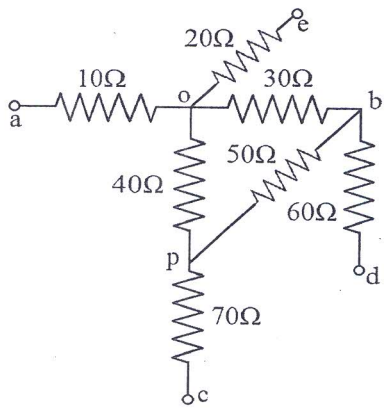
Q1) **Attempt ANY FOUR of the following:**

a) State and explain Kirchoff's Laws. **03**
b) Define Frequency, Time Period & Amplitude w.r.t alternating quantity. **03**
c) Compare Electrical and Magnetic circuit. **03**
d) Explain in brief working of an ideal transformer. **03**
e) With neat diagrams classify different types of DC motors. **03**

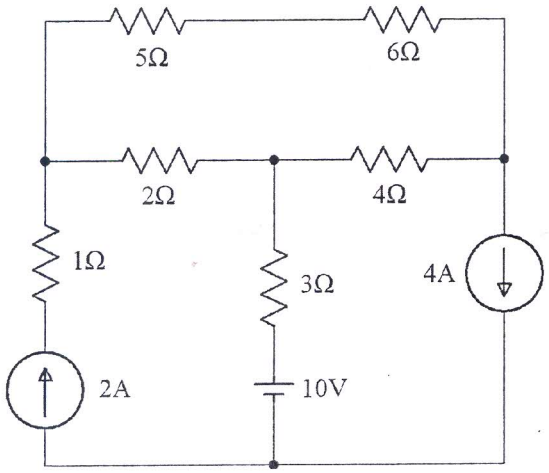
Q2) a) Analyze the given circuit and evaluate the current flowing through 6Ω resistor using Thevenin's theorem. **06**



b) Evaluate the equivalent resistance R_{AB}, R_{AD}, R_{AC} & R_{AE} of the given circuit. **06**

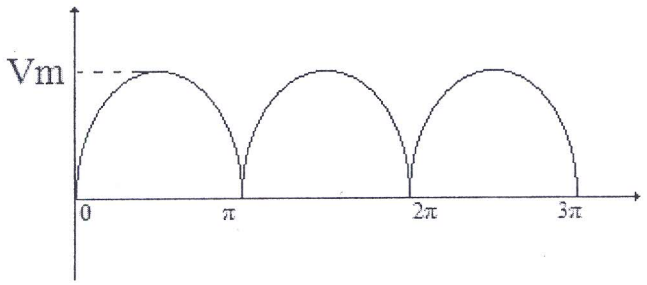


Q3) a) Analyze the given circuit and evaluate the current flowing through 6Ω resistor using Superposition theorem. **06**



b) Consider a series RL circuit connected across a AC voltage source, derive the expressions for voltage and current for the circuit also draw phasor diagram with expression for phase difference, impedance and power of the circuit. **06**

Q4) a) Find V_{avg} and V_{rms} of the given waveform. **06**



b) A R-L-C series circuit with resistance of 10Ω, inductance of 0.2H and capacitance of 40μF is supplied with the 100V supply at variable frequency, Find: **06**

i. Resonant Frequency
ii. Current at resonance
iii. Power
iv. Power factor
v. Voltage across R, L and C
vi. Quality Factor
vii. Bandwidth

Q5) a) State and explain Faraday's laws of electromagnetic induction also explain self and mutual inductance. **06**

b) Draw phase diagram for transformer at full load considering the losses. (Inductive load) **06**

Q6) a) Derive relationship between voltage and current for 3- phase star connected supply with balanced inductive load. **06**

b) Explain how rotating magnetic field is setup in 3 phase induction motor. **06**

Q7) **Attempt ANY THREE**

a) State Maximum power transfer theorem, also derive the condition for the same. **04**

b) State and explain all the advantages of three phase supply. **04**

c) Compare Ideal and Practical Transformer. **04**

d) Explain construction and working of a DC Motor. **04**