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VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

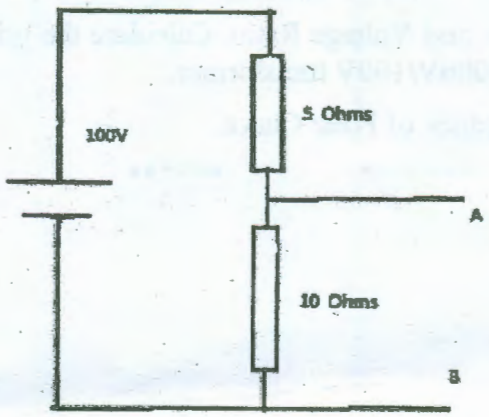
B.E. (Civil Engg.) II Year II-Semester Advanced Supplementary Examinations, June/July-2017

Electrical Technology

Time: 1½ hours Max. Marks: **35**

Part-A (11 Marks)

1. Write down the expression for power in a three phase balanced circuit. [1]
2. What are the different tests to conduct to find out the losses in a transformer? [1]
3. Can you name which type of induction motor is suitable in elevator and cranes? [1]
4. Draw the power triangle for a series RL circuit. [1]
5. Define $COS^3\theta$ law. [1]
6. What is the voltage across 10 ohm resistor in the figure below: [2]

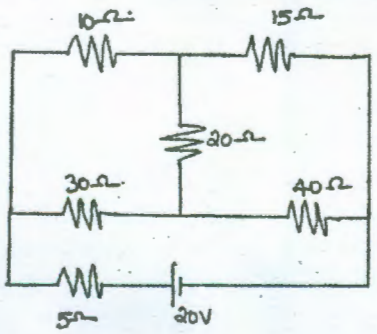


7. Define regulation of a transformer and explain why does the regulation value should be low? [2]
8. A three phase, 50 Hz, induction motor has 6poles and operate with slip of 5% at certain load. Determine the synchronous speed and rotor frequency. [2]

Part-B (3 × 8 = 24 Marks)

9. a) A coil having a resistance of 10Ω and inductance of 31.8mH is connected to 230V, 50Hz supply. Calculate *i)* circuit current, *ii)* phase angle, *iii)* power factor, *iv)* voltage drop across the elements. [4]

   b) Calculate the power consumed in 20Ω resistor shown on the diag. [4]



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10. a) Given below are the results conducted on 50KVA, 2200V/220V transformer. [4]
OC test (LV) : 405W,5A,220V
SC test (HV) : 805W,20.2A,95V
Calculate the parameters of the equivalent circuit referred to HV side.

b) With help of phasor diagram explain the working of a Practical transformer under load condition. [4]

11. a) Explain about synchronous speed of a three phase induction motor which has 8 poles. If the full load slip is 2.5%, determine synchronous speed and rotor frequency of this motor working with 50Hz supply. [4]

b) Explain the concept of rotating magnetic field. [4]

12. Answer any **two** of the following:

a) Derive the relationship between line voltage and phase voltage of a tree phase star connected system. [4]

b) Define Turns Ratio and Voltage Ratio. Calculate the primary side and secondary side current of 2KVA,1000V/100V transformer. [4]

c) Explain the significance of Polar Curve. [4]

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