Code No: 152AP **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year II Semester Examinations, August - 2019
BASIC ELECTRICAL ENGINEERING
(Common to EEE, CSE, IT)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What is the relationship between voltage and current in a capacitor? [2]
b) What is reactive power? [2]
c) What is magnetizing inductance? [2]
d) What is the value of slip at rated speed? [2]
e) What is an MCB? [2]
f) What are the properties of ideal voltage source? [3]
g) What is phasor? What is its significance? [3]
h) How to improve the efficiency of transformer? [3]
i) What is the operational difference between single phase and three phase induction motors? [3]
j) How an ELCB works? [3]

PART-B

(50 Marks)

2.a) What is steady state response?
b) How do you find out thevenin's resistance?
c) Find the current 'i' in the circuit below figure 1. [3+3+4]

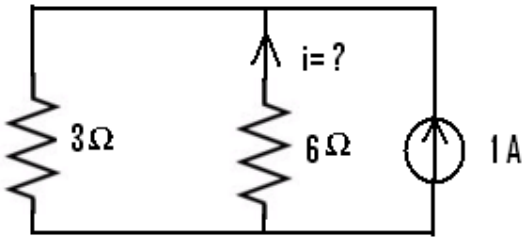

Figure: 1

OR

3.a) What is time constant of R-L circuit? What is its significance?
b) What is the procedure to find out norton's current?
c) Find the voltage 'V' in the circuit below figure 2. [3+3+4]

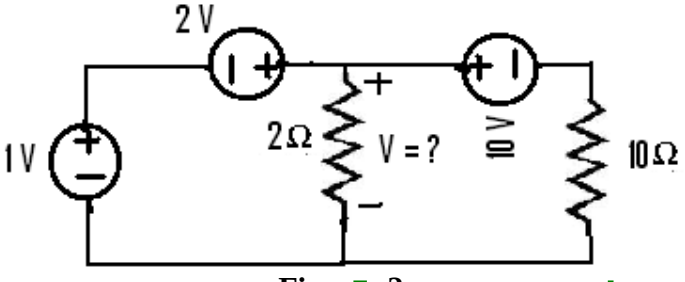

Figure: 2

4.a) How to represent two sinusoidal quantities with different phase angles as phasors?
b) How RYB phase sequence is different from RBY phase sequence?
c) What is the source impedance of the circuit below figure 3 if the AC source is replaced with DC source? [3+3+4]

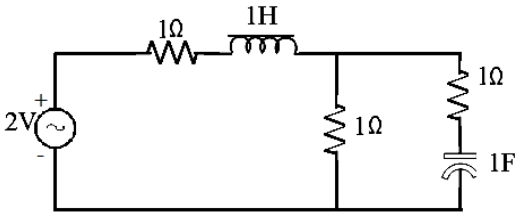

Figure: 3

OR

5.a) What is the significance of lagging power factor? How to understand?
b) Where do we need star connected three phase systems?
c) Find the currents represented in the circuit below shown in figure 4 at resonance. [3+3+4]

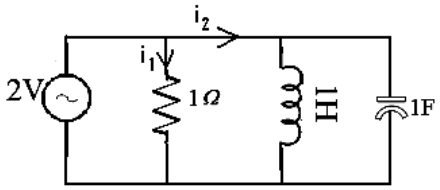

Figure: 4

6.a) What are the properties of an ideal transformer?
b) What are the various connections of three phase transformer?
c) A load of 10 kVA at 1100 V and unity power factor is to be supplied from a 2200 V source by means of an auto-transformer. Find the percentage of the volume of copper saved to two winding transformer of the same duty [3+3+4]

OR

7.a) How to represent leakage flux in equivalent circuit?
b) What is the meaning of zero regulation in transformer?
c) How the transformer behaves at no load? [3+3+4]

8.a) How a synchronous generator works?
b) How the torque-slip characteristics vary with the variation in input voltage of induction motor?
c) What are the limitations of DOL starting? [3+3+4]

OR

9.a) What is the constructional difference between synchronous and induction machine?
b) How the torque-slip characteristics vary with the variation in rotor resistance of induction motor?
c) How to increase of the speed of induction motor? [3+3+4]

10.a) How an MCB works?
b) Why do we do Earthing?
c) Explain various types of wires. [3+3+4]

OR

11.a) Draw the various characteristics of batteries.
b) How to improve the power factor?
c) Write short notes on battery backup. [3+3+4]

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