

Roll No.....

Total No. of Printed Pages: [02]

Total No. of Questions: [09]

B. Tech (All branches) (Semester – 1st/2nd)

BASIC ELECTRICAL ENGINEERING

Subject Code: BELEE0101

Paper ID: [19110001]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

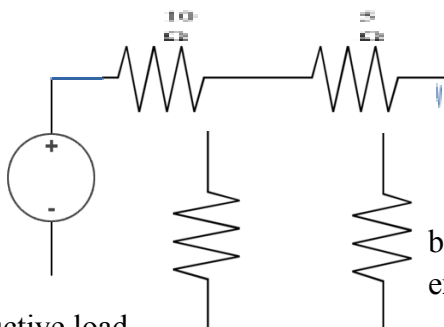
Q1. Attempt the following:

- a) State Kirchhoff's Nodal Law
- b) What are dependent sources?
- c) Define RMS value for AC.
- d) What is meant by balanced circuits?
- e) How is the thickness of a wire related to the resistance offered by the wire?
- f) Which losses of transformer are dependent on frequency of supply?
- g) Define voltage regulation as referred to transformers.
- h) Are single phase induction motors self starting?
- i) What is function of ELCB?
- j) Why is earthing required for an electrical installation?

Section – B

(5 marks each)

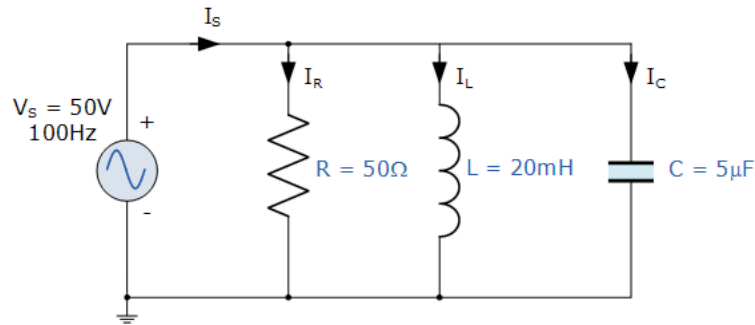
Q2. Using Kirchhoff's mesh law, find the current in 2Ω resistor



- Q3. Differentiate between series and parallel resonance.
- Q4. Draw and explain the phasor diagram for a transformer with inductive load.
- Q5. How is a rotating magnetic field generated?
- Q6. What are various types of electrical wiring? Where are they used?

Section – C**(10 marks each)**

- Q7. A 50Ω resistor, a 20mH coil and a $5\mu\text{F}$ capacitor are all connected in parallel across a 50V , 100Hz supply. Calculate the total current drawn from the supply, the current for each branch, the total impedance of the circuit and the phase angle. Also construct the current and admittance triangles representing the circuit.



- Q8. Describe the construction and working with applications for following single phase motors: (5,5)
a) split phase
b) capacitor start capacitor run
- Q9. What is an auto transformer? How is it different from a two winding transformer? What are its applications? (3,4,3)