Roll No. ....

3010

B. Tech. (Common For All Branches)
1st Semester
Examination – February, 2022
BASIC ELECTRICAL ENGG.

Paper : ESC-EE-101-G

Time : Three Hours]   *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) State and explain Kirchhoff's Laws.   3

   (b) Define the following terms phase, frequency and time period.   3

   (c) Derive equation of EMF for single phase transformer.   3

   (d) Differentiate between phase voltage and line voltage of three phase circuits.   3

P. T. O.

   (e) What do you understand by deflecting torque in measuring instrument ?   3

UNIT – I

2. State and explain Thevenin's theorem with the help of some example.   15

3. (a) What do you understand by :   7.5

     (i) Real power

     (ii) Reactive power

     (iii) Apparent power

   (b) What do you understand by resonance ? Derive the mathematical expression of resonance frequency for a series RLC circuit.   7.5

UNIT – II

4. What is transformer ? Explain its working principle and construction. Draw and explain phasor of an ideal transformer.   15

5. Write down the relationship between line voltage and line current with phase voltage and phase current in 3 phase balanced star connected circuit.   15

UNIT – III

6. Explain working principle and construction of a single phase induction motor.   15

7. What do you understand by rotating magnetic field ? Explain construction and working of three phase induction motor. 15

UNIT – IV

8. What is the working principle of moving iron type and moving coil type measuring instrument ? Explain construction of both. 15

9. Write a short note on :

    (a) Types of wires and cables 7.5

    (b) Earthling 7.5

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