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B.Tech. (Common for All Branches) 2nd Semester
(G-Scheme)

Examination, July-2022

BASIC ELECTRICAL ENGINEERING

Paper- ESC-EE-101 G

Time allowed : 3 hours [Maximum marks : 75]

Note : Question No. 1 is compulsory. Attempt five questions in all, selecting at least one question from each section.

1. (a) Distinguish between loop and mesh 3
- (b) What do you understand by Resonance? 3
- (c) Define Electromagnetic induction. 3
- (d) What is Earthing why it is required? 3
- (e) What do you understand by phasor 3

Section - A

2. State and explain Norton's Theorem with the help of some example. 15

or

3. (a) Derive the relationship between voltage and current of a series RLC circuit. 7.5

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- (b) What do you understand by Average value and RMS value? Derive the mathematical expression of Average value and RMS value for a sinusoidal wave form. 7.5

Section- B

4. What is working principle of Transformer? Explain its construction, draw the phasor diagram and equivalent circuit of a single phase transformer. 15

or

5. (a) How the power is measured by two-wattmeter in a 3-phase balanced load? 7.5

- (b) A balanced 3-phase star connected load draws power from a 440V supply. The two wattmeter connected indicate $W_1 = 4.2 \text{ kW}$ and $W_2 = 0.8 \text{ kW}$. Calculate power factor and current in the circuit. 7.5

Section- C

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

or

7. Name the various parts of a synchronous machine. Write the function of each part in detail. 15

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Section- D

8. Write a short note on
(a) Type of wires and cables. 7.5
(b) What is earthing? What is purpose of earthing 7.5

or

9. Describe with a neat sketch working of a moving iron type instrument. 15

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