



Regulation R20

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 3E1AD

B.Tech I Semester Supplementary Examinations, April 2023
BASIC ELECTRICAL ENGINEERING

(Common to CE & EEE)

Maximum Marks: 70

Date: 15.04.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

- 1 Define Active And Passive Elements.
- 2 State Norton's theorem.
- 3 Define time period.
- 4 Define frequency.
- 5 Write the principle of Transformer.
- 6 Write about self-inductance.
- 7 Classify armature windings a in DC machine.
- 8 Define slip in induction motor.
- 9 What is the importance of Fuse.
- 10 What are the types of batteries.

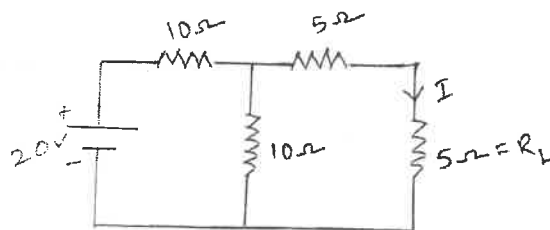
(10x2M=20 Marks)

Part-B

Answer All the following questions.

- 11 Explain derivation of delta-star conversion equations? [10M]
- 12 Find the current "I" across load resistor R_L using Thevenin's theorem. [10M]

(5X10M=50Marks)



- 13 Derive the expression for average value, RMS value, Form factor and Peak factor of sinusoidal waveform. [10M]

OR

- 14 Derive the expression for impedance (Z), phase angle (θ) and power factor ($\cos\phi$) for RLC series circuit with relevant phasors. [10M]

- 15 a) Derive the Emf equation of transformer. [5M]
b) A 50KVA, 1100/400 V, 50Hz single phase transformer has 80 turns on the primary. [5M]
Calculate:
i) the number of turns on the secondary
ii) the full load primary and secondary currents and
iii) the maximum value of the flux
- OR
- 16 Explain the construction and working principle of Ideal and Practical transformer. [10M]
- 17 Explain Back Emf of dc motor. Derive the torque equation of DC motor. [10M]
- OR
- 18 Explain the torque –speed characteristics of 3-phase induction motor. [10M]
- 19 Explain the different types of MCB'S in details. [10M]
- OR
- 20 Explain about service mains, meter board and distribution board in detail. [10M]