*R18 Regulation* *Subject code: 2E1AD*

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

## B.Tech I Semester Supplementary Examinations, June 2024

## BASIC ELECTRICAL ENGINEERING

*(Common to CE,EEE,ME & IT)*

***Maximum Marks: 70*** Date:05.07.2024 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.**

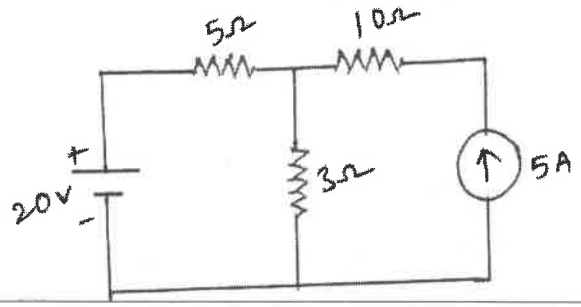
Part-A

All the following questions carry equal marks (10X2M=20 Marks)

| Q.NO | QUESTIONS | CO | Blooms Tx |
|---|---|---|---|
| 1 | State Ohm's law. | CO1 | L1 |
| 2 | State Norton's theorem. | CO1 | L1 |
| 3 | Define time period. | CO1 | L1 |
| 4 | Define i) form factor ii) peak factor | CO1 | L1 |
| 5 | Define transformation ratio. | CO2 | L1 |
| 6 | Write the iron losses of the transformers? | CO2 | L2 |
| 7 | Define motor. | CO3 | L1 |
| 8 | Write the Emf equation of a dc generator? | CO3 | L1 |
| 9 | Write about Earthing? | CO4 | L2 |
| 10 | List the types of cables. | CO4 | L1 |

Part-B

Answer All the following questions. (10M X 5=50Marks)

| | | | |
|---|---|---|---|
| 11 | State Kirchhoff's voltage law and Kirchhoff's Current law with suitable example. [10M] | CO1 | L2 |
| | OR | | |
| 12 | Find the current response across 3Ω resistor using superposition theorem. [10M]   | CO1 | L3 |

| | | | |
|---|---|---|---|
| 13 | Explain following terms: [2MX5=10M]<br>i) form factor ii) peak factor iii) phase difference iv) frequency<br>v)Power factor ? | CO1 | L2 |
| | OR | | |
| 14 | Derive the expression for impedance (Z), phase angle (Θ) and power factor (cosϕ) for RLC series circuit with relevant phasors. [10M] | CO1 | L3 |
| 15 | Explain the principle of operation of transformer and derive the Emf equation. [10M] | CO2 | L2 |
| | OR | | |
| 16 | Explain about Auto-Transformer with neat diagram. [10M] | CO2 | L2 |
| 17 | Explain the constructional features of DC machine with neat diagram. [10M] | CO3 | L3 |
| | OR | | |
| 18 | Explain the working of 3-phase induction motor. [10M] | CO3 | L2 |
| 19 | Explain the different types of MCB'S in details. [10M] | CO4 | L2 |
| | OR | | |
| 20 | Classify the types of batteries and mention the important characteristics of batteries. [10M] | CO4 | L2 |