**Code No.ES202EE**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (CIVIL/MECH) II-Semester (AICTE) Examination, SEPTEMBER-2023**

**Subject: ELEMENTS OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**Time: 3 hours Max.Marks:60**

**Note: Missing data, if any, maybe suitably assumed.**

**PART-A**

**Answer All the questions.(10X2M=20M)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No.** | **Questions** | **Marks** | **CO** | **BTL** |
| 1. a | State Kirchoff’s voltage and current Law. | 2 | 1 | 1 |
| b | State Thevenin’s Theorem. | 2 | 1 | 1 |
| c | Explain the principle operation of DC Generator. | 2 | 2 | 2 |
| d | What are the losses in DC Machines? | 2 | 2 | 1 |
| e | Define Voltage Regulation. | 2 | 3 | 1 |
| f | What is an Ideal Transformer? | 2 | 3 | 1 |
| g | List the applications of CRO. | 2 | 4 | 1 |
| h | What is a rectifier? | 2 | 4 | 1 |
| i | How does BJT act as switch? | 2 | 5 | 1 |
| j | What is an Oscillator? | 2 | 5 | 1 |

**P.T.O**

**Code No.ES202EE**

**PART-B**

**Answer Any Five questions**.**(5X8M=40M)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q.No.** |  | **Questions** | **Marks** | **CO** | **BTL** |
| 2. | a | State Super position Theorem. | 2 | 1 | 2 |
| b | Using the same find current flowing through the 2 Ohms resistor for the given circuit. | 6 | 1 | 3 |
| 3. | a | Explain the principle operation of DC Motor. | 4 | 2 | 2 |
| b | Develop the EMF equation of a DC Generator. | 4 | 2 | 3 |
| 4. | a | Explain working principle of a transformer. Give relationship of Transformation ratio. | 4 | 3 | 3 |
| b | Explain the three phase trasformer connections. | 4 | 3 | 2 |
| 5. | a | With a neat circuit diagram, explain the working of a Half-wave rectifier along with relevant waveforms. | 4 | 4 | 5 |
| b | Explain the operation of PN junction diode. | 4 | 4 | 2 |
| 6. | a | Explain the configurations of BJT. | 4 | 5 | 2 |
| b | Explain about the construction and working of JFET. | 4 | 5 | 2 |
| 7. | a | Explain the voltage and current relationship for passive elements. | 4 | 1 | 2 |
| b | Classify and explain speed control methods in DC machines. | 4 | 2 | 4 |
| 8. | a | Explain types of 3 phase induction motors. | 4 | 3 | 2 |
| b | Explain the working of Full Wave Rectifier. | 4 | 4 | 2 |
| 9. | a | Explain briefly about RC oscillators. | 4 | 5 | 2 |
| b | Classify and explain voltage and current sources. | 4 | 1 | 4 |

**\*\*\*\*\*\***