**Code No.ES202EE**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (CIVIL/MECH) II-Semester (Supplementary) Examination, FEB-2024**

**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)**

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| **Q.No.** | **Questions** | **Marks** | **CO** | **BTL** |
| 1. a | State Ohm’s Law. | 2 | 1 | 1 |
| b | State Super position Theorem. | 2 | 1 | 1 |
| c | Explain the principle operation of DC Motor. | 2 | 2 | 2 |
| d | List the speed control methods in DC Machines. | 2 | 2 | 2 |
| e | What are the losses in Transformer? | 2 | 3 | 2 |
| f | What are the types of three phase Induction motor based on construction? | 2 | 3 | 2 |
| g | Sketch the VI Characteristics of PN Junction diode. | 2 | 4 | 2 |
| h | Sketch the output waveform of Half Wave Rectifier. | 2 | 4 | 2 |
| i | What is the difference between the diode and transistor? | 2 | 5 | 1 |
| j | What is RC Oscillator? | 2 | 5 | 1 |

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**PART-B**

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

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| **Q.No.** |  | **Questions** | **Marks** | **CO** | **BTL** |
| 2. | a | Illustrate Norton’s Theorem with a suitable example | 4 | 1 | 2 |
| b | Using Thevenin’s Theorem, find the current ‘i' in 10 Ω Resistor. | 4 | 1 | 3 |
| 3. | a | Explain the principle operation of DC Generator. | 4 | 2 | 2 |
| b | Explain constructional details of DC machines | 4 | 2 | 3 |
| 4. | a | Develop the EMF equation of a transformer. | 4 | 3 | 3 |
| b | Explain the types of a three phase induction motor in detail. | 4 | 3 | 2 |
| 5. | a | With a neat circuit diagram, explain the working of a Full-wave rectifier along with relevant waveforms. | 4 | 4 | 5 |
| b | Explain the operation of Zener diode regulators. | 4 | 4 | 2 |
| 6. | a | Explain about the construction and working of BJT. | 4 | 5 | 2 |
| b | Explain briefly about V-I Characteristics of JFET. | 4 | 5 | 2 |
| 7. | a | State and Explain Kirchhoff’s current and voltage law. | 4 | 1 | 2 |
| b | Classify and explain types of field excitation in DC machines. | 4 | 2 | 4 |
| 8. | a | Classify and explain types of losses in a DC machine. | 4 | 3 | 4 |
| b | Explain the working of Half Wave Rectifier. | 4 | 4 | 2 |
| 9. | a | Explain briefly about LC oscillators. | 4 | 5 | 2 |
| b | Explain the concept of Source Transformation. | 4 | 1 | 2 |

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