**Code No.ES202EE**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (EEE) II-Semester (AICTE) Supplementary Examination, February-2023**

**Subject: PRINCIPLES OF ELECTRICAL & ELECTRONICS ENGINEERING**

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

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

**PART-A**

**Answer All the questions.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No.** | **Questions** | **Marks** | **CO** | **BTL** |
| **1. a** | Define Ohm’s law | **2** | **1** | **L1** |
| **b** | Define dependent sources | **2** | **1** | **L1** |
| **c** | Define loop, branch. | **2** | **2** | **L1** |
| **d** | Obtain delta equivalent for the star circuit with resistors Ra = 3Ω, Rb = 2Ω, Rc = 1Ω in star | **2** | **2** | **L2** |
| **e** | State maximum power transfer theorem | **2** | **3** | **L2** |
| **f** | State super position theorem | **2** | **3** | **L2** |
| **g** | What is forward bias and reverse bias in a PN junction | **2** | **4** | **L1** |
| **h** | Give applications of zener diode | **2** | **4** | **L3** |
| **i** | Why transistor is called as a current controlled device? | **2** | **5** | **L1** |
| **j** | Why FET is called unipolar device | **2** | **5** | **L1** |

**PART-B**

**Answer Any Five questions**.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q.No.** |  | **Questions** | **Marks** | **CO** | **BTL** |
| **2.** | **a** | Differentiate between active and passive elements | **4M** | **1** | **L4** |
| **b** | By using star-delta transformation for the following figure 1. Find the current ‘I’ supplied by the battery? | **4M** | **1** | **L3** |
| **3.** |  | Find the equivalent resistance connected between Rab for the circuit shown in figure | **8M** | **2** | **L3** |
|  |  |  |  |  |
| **4.** | **a** | State and explain Thevenin’s theorem | **4M** | **3** | **L2** |
| **b** | Using Thevinis theorem find the voltage V in the circuit shown in figure | **4M** | **3** | **L3** |
| **5.** | **a** | Draw and explain the V-I characteristics of a pn junction | **4M** | **4** | **L3** |
| **b** | Compare Half wave rectifier, Full wave rectifier and Bridge rectifier in any four aspects. | **4M** | **4** | **L4** |
| **6.** |  | Illustrate the input and output characteristics of BJT in three configurations. | **8M** | **5** | **L3** |
|  |  |  |  |  |
| **7.** | **a** | Explain the Kirchhoff’s laws? | **3M** | **1** | **L1** |
| **b** | Find the current through 12Ω resistor using nodal analysis | **5M** | **2** | **L3** |
| **8.** | **a** | State and explain reciprocity theorem | **4M** | **3** | **L1** |
| **b** | Find the rms value, average value and form factor of a half wave rectified voltage | **4M** | **4** | **L2** |
| **9.** | **a** | Explain in detail the volt-ampere relationship of R, L and C elements with neat diagrams. | **4M** | **1** | **L2** |
| **b** | Explain the necessity of filter after the rectifier circuit | **4M** | **4** | **L1** |

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