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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examination- JANUARY 2025** |
| **Date:** 16 – 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| --- | --- | --- |
| **School:** SOE | **Program:** B. Tech. EEE | |
| **Course Code:** EEE3011 | **Course Name:**  Testing and Commissioning of Electrical Equipment’s | |
| **Semester**: V | **Max Marks**: 100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** |
| **Marks** | **24** | **26** | **24** | **26** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1** | Define the term creepage while assembling the electrical equipment’s. | **2 Marks** | **L1** | **CO1** |
| **2** | List the permissible values of earth resistance domestic wiring-less, power stations, extra high tension, and tower foot resistance. | **2 Marks** | **L1** | **CO1** |
| **3** | Why a breather is used in a transformer? | **2 Marks** | **L1** | **CO2** |
| **4** | Define electrical machines alignment. | **2 Marks** | **L1** | **CO2** |
| **5** | What is the purpose of megger? | **2 Marks** | **L1** | **CO2** |
| **6** | Identify the tests on transformers falling under the category of type tests from the following.  Noise level test, polarity test, impulse voltage test, insulation resistance test, temperature rise test, tan delta test, and no-load losses test. | **2 Marks** | **L3** | **CO3** |
| **7** | Define the voltage regulation of a transformer. | **2 Marks** | **L1** | **CO3** |
| **8** | In a 3-phase star-connected motor winding supplied with a D.C. voltage, the voltmeter connected across two phases is reading 100 V, and the ammeter connected in series with one phase is reading 10 A, then calculate the A.C. resistance per phase. | **2 Marks** | **L3** | **CO4** |
| **9** | Identify the coolant names based on the designated letters given below and fill in the blanks.  U:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, C:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,  H:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, N:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, | **2 Marks** | **L3** | **CO4** |
| **10** | Define the cooling process in electrical machines. | **2 Marks** | **L1** | **CO4** |

**Part B**

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| **Answer the Questions. Total Marks 80** | | | | | |
| **11.** | **a.** | Explain the key objectives of a safety management system. | **10 Marks** | **L2** | **CO1** |
| **b.** | Explain the earthing procedure of a substation. | **10 Marks** | **L2** | **CO1** |
| **or** | | | | | |
| **12.** | **a.** | Summarize the components of an earthing system in power plants. | **10 Marks** | **L2** | **CO1** |
| **b.** | Explain the earthing procedure for industrial premises in detail. | **10 Marks** | **L2** | **CO1** |
|  |  |  |  |  |  |
| **13.** | **a.** | Explain the procedure of inspection, storage, and handling of a transformer. | **10 Marks** | **L2** | **CO2** |
| **b.** | Explain the various steps to be followed while inspecting electrical equipment at the site. | **10 Marks** | **L2** | **CO2** |
| **or** | | | | | |
| **14.** | **a.** | Explain the factors to be considered while designing the foundation for electrical equipment at a site. | **10 Marks** | **L2** | **CO2** |
| **b.** | Summarize the benefits of geometrical alignment of electrical machines. | **10 Marks** | **L2** | **CO2** |

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| **15** | Demonstrate the test setup for impulse testing of power transformers with a neat diagram. | **20**  **Marks** | **L2** | **CO3** |
| **Or** | | | | |
| **16** | Explain the following methods to measure the winding resistance of a transformer.  a) Voltmeter ammeter method  b) Bridge methods (Kelvin bridge method and Wheatstone bridge method) | **20 Marks** | **L2** | **CO3** |

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| **17** | Explain the procedure of starting and synchronizing a synchronous generator to operate in parallel with busbars. | **20**  **Marks** | **L2** | **CO4** |
| **Or** | | | | |
| **18** | Explain the various faults that take place in synchronous generators. | **20**  **Marks** | **L2** | **CO4** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***