



**B.E. DEGREE EXAMINATIONS: NOV/DEC 2022**

(Regulation 2018)

Seventh Semester

**ELECTRICAL AND ELECTRONICS ENGINEERING**

U18EEE0014: Electrical Safety and Energy Management

**COURSE OUTCOMES**

- CO1:** Understand the rules and regulations of power sector in India and know the requirement for erecting a transmission system.
- CO2:** Understand the electrical installation and earthing with equipment.
- CO3:** Describe the concept of safety management and know the first aid of various industrial accidents.
- CO4:** Identify the various fire extinguishers and its prevention techniques.
- CO5:** Describe the concept of energy management and energy auditing.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

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|--|-----|-------------------|
| 1. List any five electrical safety tips.   | CO1 | [K <sub>1</sub> ] |
| 2. What is Sag in Transmission Line?   | CO1 | [K <sub>2</sub> ] |
| 3. Differentiate Earthing and Grounding.   | CO2 | [K <sub>2</sub> ] |
| 4. What is Electrical Installation?  | CO2 | [K <sub>1</sub> ] |
| 5. Recall the actions taken after a person has received an electrical shock.   | CO3 | [K <sub>1</sub> ] |
| 6. Define Safety Management.   | CO3 | [K <sub>1</sub> ] |
| 7. What are the five different ways to prevent fire in the industry?   | CO4 | [K <sub>1</sub> ] |
| 8. An extinguisher rated as 10-B can extinguish how many square feet of a flammable liquid?<br>Also give an example of a flammable liquid. | CO4 | [K <sub>2</sub> ] |
| 9. State the essentials of Energy Audit.   | CO5 | [K <sub>1</sub> ] |
| 10. State the objectives of Energy Management.   | CO5 | [K <sub>2</sub> ] |

**Answer any FIVE Questions:-**

**PART B (5 x 16 = 80 Marks)**

**(Answer not more than 400 words)**

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|---|---|-----|-------------------|
| 11. a) With neat single line diagram, explain the operation of 11kV Substation. | 8 | CO1 | [K <sub>1</sub> ] |
| b) Elaborate the roles of Power Sector Organization of India.                   | 8 | CO1 | [K <sub>2</sub> ] |

12.	a)	What is short circuit protection in electrical appliances? Detail its causes and different types of devices used for protection.	8	CO2	[K <sub>2</sub> ]
	b)	Detail about different electrical hazards and methods to prevent from electrical hazards.	8	CO2	[K <sub>2</sub> ]
13.	a)	Interpret the safety aspects during commissioning.	8	CO3	[K <sub>2</sub> ]
	b)	Explain the safety program structure and safety clearance notice before energizing.	8	CO3	[K <sub>2</sub> ]
14.	a)	Explain the different types of Fire Extinguishers.	10	CO4	[K <sub>2</sub> ]
	b)	Enumerate on initiation of fire.	6	CO4	[K <sub>2</sub> ]
15.		Bring out the difference between Energy Conservation and Energy efficiency and its relevance.	16	CO5	[K <sub>2</sub> ]
16.	a)	State the significance of IE rules and IE acts	8	CO1	[K <sub>2</sub> ]
	b)	Detail about electrical wiring systems.	8	CO2	[K <sub>2</sub> ]

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