

**INSTITUTE OF AERONAUTICAL ENGINEERING**

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2022

Regulation: R18

ELECTRICAL SAFETY AND SAFTEY MANAGEMENT

Time: 3 Hours

(EEE)

Max Marks: 70

Answer FIVE Questions choosing ONE question from each module
(NOTE: Provision is given to answer TWO questions from any ONE module)

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

MODULE – I

1. (a) State and explain the ground clearance to be maintained in overhead distribution and transmission lines installation as per electrical safety standards. [7M]
- (b) Discriminate the earthing and grounding of power installations. Explain the various grounding used in electrical system installations. [7M]
2. (a) List and explain the various firefighting equipment required in commercial buildings. [7M]
- (b) Explain the principle of unsafe acts and conditions behind electrical accident. Give an example. [7M]

MODULE – II

3. (a) State and explain the dos and don'ts for safety in the use of domestic electrical appliances. [7M]
- (b) Prepare the bill of quantities (BoQ) for installation of a 5 HP mono block pump for suction of 4 inch with delivery of 3 inch. Where bore depth is 210 feet and required delivery 300 feet with two right angle bends. The service point available at 50 meters away from pump. [7M]
4. (a) List the causes for water taps and wet walls giving shock, recommend safety devices to be installed to save from the above shocks. [7M]
- (b) What are the failure modes of flashover in the air gaps? Explain causes of overheating and thermal failure in electrical equipment. [7M]

MODULE – III

5. (a) Explain the preliminary preparations to be followed for safe installations of industrial installations. [7M]
- (b) Analyze the various personal safety equipment used while industrial installations were under progress. [7M]
6. (a) State and explain essential safety precautions to be taken during installation of a power plant. [7M]
- (b) Describe safety precautions related with installation of metal-enclosed draw-out switchgear. [7M]

MODULE – IV

7. (a) List the objectives of safety studies? Explain the interface between industrial safety and electrical safety. [7M]
(b) List and explain the classification of equipment enclosure for various hazardous gases and vapours. [7M]
8. (a) State and explain the personal protective equipment for working over hazards. [7M]
(b) Explain the principle of multiple causes behind an accident with an example. [7M]

MODULE – V

9. (a) State the root causes of accidents at construction site. Explain safety organisation at construction site of an electrical plant. [7M]
(b) List the causes for low power factor in industries. Suggest various methods to improve the power factor in industry. [7M]
10. (a) Explain the need for specifying minimum creepage distance for insulators. Why it depends on pollution level ? [7M]
(b) Design a automatic control for dynamic power factor control for the load variation from 750 to 1250 kW of 0.75 to 0.95 PF lagging correct to 0.98 PF lagging. [7M]

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