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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR/SUPPLEMENTARY) - DECEMBER 2022

Regulation:R18

ELECTRICAL SAFETY AND SAFETY MANAGEMENT

Time: 3 Hours (ELECTRICAL AND ELECTRONICS ENGINEERING) Max Marks: 70

Answer FIVE Questions choosing ONE question from each module

All Questions Carry Equal Marks

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

MODULE – I

- (a) Write the objectives of safety studies and safety measures. Specify various fire fighting equipment used to fight against electrical short circuit. [BL: Understand| CO: 1|Marks: 7]

(b) Explain the ground clearance to be maintained in overhead distribution and transmission lines installation as per electrical safety standards. [BL: Understand| CO: 1|Marks: 7]
- (a) Discuss in detail about the procedure for the measurement of the earth resistivity for sub-stations and generating stations. [BL: Understand| CO: 1|Marks: 7]

(b) Outline the significance of earthing for any electrical installation, and also state the earth resistance to be maintained at various amenities. [BL: Understand| CO: 1|Marks: 7]

MODULE – II

- (a) Relate with the help of an example the principle of multiple causes behind an accident. Mention Do's and Don'ts for safety in the use of industrial installations. [BL: Understand| CO: 2|Marks: 7]

(b) Prepare a bill of materials (BoM) for distribution of electricity board power and generator power of a five storied building in each floor having 8 flats of 2 BHK. [BL: Apply| CO: 2|Marks: 7]
- (a) Elucidate the temporary installations, procedure to provide any temporary installation. [BL: Understand| CO: 2|Marks: 7]

(b) Differentiate between insulation failure modes due to power frequency voltage and surge overvoltage. Mention the preventive measures in each case [BL: Understand| CO: 2|Marks: 7]

MODULE – III

- (a) Describe the preliminary preparations to be followed for safe installations of industrial installations. [BL: Understand| CO: 3|Marks: 7]

(b) Based on field quality, what are the safety procedure to be followed while installations were under progress. [BL: Understand| CO: 3|Marks: 7]
- (a) Identify the significance of risk of plant. Explain about the equipment used in risk plants. [BL: Understand| CO: 3|Marks: 7]

(b) Discuss unsafe conditions and acts during construction of phases and safety procedure to prevent accidents [BL: Understand| CO: 3|Marks: 7]

MODULE – IV

7. (a) List the safety precautions that would be taken while working in hazardous zones in industry. [BL: Understand| CO: 4|Marks: 7]
- (b) Classify the equipment for various hazardous locations. Explain the specifications of electrical power plant. [BL: Understand| CO: 4|Marks: 7]
8. (a) Describe the procedure of lodging an insurance claim after an accidental building collapse in a plant during construction. [BL: Understand| CO: 4|Marks: 7]
- (b) Why dry type transformers are recommended to use in substations in power plant auxiliary system and commercial industrial substations? Explain. [BL: Understand| CO: 4|Marks: 7]

MODULE – V

9. (a) What are the factors influencing the power quality in industries? Enlist the steps to be taken during and after electric shock to save person's life. [BL: Understand| CO: 5|Marks: 7]
- (b) Outline the importance of power factor improvement and also explain the methods to improve power factor. [BL: Understand| CO: 5|Marks: 7]
10. (a) Explain the function of isolators and earthing switches. Why conductor needs discharging before maintenance ? [BL: Understand| CO: 5|Marks: 7]
- (b) Give five case studies of accidents at construction site of a power station. State the causes and preventive actions. [BL: Apply| CO: 5|Marks: 7]

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