

CENTRAL PUBLIC WORKS DEPARTMENT
Departmental Examination for Assistant Executive Engineer(E)
Electrical Engineering Paper-I
(Without Book)
2021

Time: 3 Hrs.

Max. Marks:100

Attempt All Questions

Q1. Explain ANY TEN of following terms in context of Lighting System:

[Marks 2x10=20]

- i) LED as light Source
- ii) CRI
- iii) CCT
- iv) LED Binning
- v) Power LED Light
- vi) LM 79 Standards
- vii) LM 80 Standards
- viii) Brightness
- ix) Illumination
- x) L70
- xi) LLD
- xii) Theoretical light output limit of LED
- xiii) Silhouette design
- xiv) Point vs Line Light Source

Q2. Describe ANY TEN of following terms about Lifts System:

[Marks 2x10=20]

- i) Simplex Selective Collective Automatic Operation
- ii) Duplex Selective Collective Automatic Operation
- iii) Functions and essential features of ARD
- iv) Machine Room Less Lift
- v) High Speed Lifts
- vi) Main difference in Goods & Passenger Lifts
- vii) Accessibility norms for Lifts for differently abled persons
- viii) Hydraulic lifts selection for a Building
- ix) Regenerating Lifts
- x) Lift Rope Compensation
- xi) Fireman's Switch
- xii) Service Lifts
- xiii) Architrave

Q3. Elaborate following terms related to Fire Alarm System:

- i) What are various kinds of fire detector? Elaborate their features, selection criterion with examples of their application. [Marks 8]
- ii) Mimic Diagram [Marks 2]

Q4. Elaborate ANY TEN of the following terms related to Fire Safety Systems in Buildings: [Marks: 2x10=20]

- i) What order of precedents is to be followed while planning Fire Safety systems in buildings among building by laws of concerned municipal authority, National building code, other BIS codes and TAC / NFPA code.
- ii) What are different categories of portable first aid fire extinguishers. Also comment their suitability and self-life.
- iii) Smoke ventilation
- iv) Pressurisation of lifts well/Staircase
- v) Life safety measures in building
- vi) Fire Lifts
- vii) Emergency lighting /Escape Lighting
- viii) Compartmentalisation
- ix) Fire rated doors and windows
- x) Categories of Fire Risk as per NBC
- xi) Internal and External Fire Hydrant System
- xii) Wet Riser Vs Down Comer System

Q5. Elaborate and explain ANY FIVE of the following terms related to HVAC system: [Marks: 4x5=20]

- i) Free Cooling
- ii) Eco-Friendly Refrigerant
- iii) Sick building Syndrome
- iv) COP Vs IPLV
- v) VRV Vs Centralized Air Conditioning System
- vi) Demand controlled mechanical ventilation system
- vii) Screw Vs Centrifugal Chiller System

Q6. Elaborate and explain ANY FIVE of the following terms related to ECBC & Energy Audit of Buildings: [Marks: 2x5=10]

- i) Performance Contracting
- ii) EPI & star rating
- iii) TOD Tariff
- iv) Contract Demand
- v) Green Building
- vi) Net Positive Building
- vii) Building Envelope
