

**INDEX****UNIT I****Chapter 1 : Illumination 1-1 to 1-52****Syllabus :**

- 1.1 Definitions of various illumination terminology - Luminous flux, solid angle, luminous intensity, lux, candlepower, MHCP, MSCP, MHSCP, illumination, lamp efficiency, depreciation factor, maintenance factor, coefficient of utilization, space to height ratio, reflection factor, waste light factor, glare, shadow.
- 1.2 Laws of illumination : Inverse squares and Lambert's Cosine law.
- 1.3 Various types of lamps : Low pressure mercury vapour lamps (fluorescent tube), Compact Fluorescent Lamps (C.F.L.), High pressure mercury vapour lamps, Sodium vapour lamps, Metal halide lamps, LED lamps.
- 1.4 Various lighting schemes : features and application.
- 1.5 Domestic and industrial lamp fittings.
- 1.6 Electronic ballast.

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UNIT II**Chapter 2 : Electric Heating and Welding Systems****2-1 to 2-47****Syllabus :**

- 2.1 Concept of electrical heating, classification of electric heating, modes of heat transfer.
- 2.2 Direct and indirect resistance heating : working principle and construction and applications.
- 2.3 Requirements of resistance heating element material, methods of temperature control, design of heating element.



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UNIT III

Chapter 3 : Electric Drives and Elevators 3-1 to 3-47

Syllabus :

- 3.1 Electric drives : concept factors governing selection of electric drives (motor).
- 3.2 Types of electrical drives : Individual and group drive, applications.
- 3.3 Mechanical features of drives : Purpose, types and application of various types of enclosures.
- 3.4 Transmission of mechanical power : Direct and indirect drive (Belt, Rope, Chain, Gear), Vertical drives and its applications.
- 3.5 Bearing : Types and applications.
- 3.6 Size and rating of motor, Definition of standard rating as per IS.
- 3.7 Load cycles : Concept with graphical representation.
- 3.8 Load Equalization : Meaning, methods and condition of load equalization.
- 3.9 Braking : Definition of braking, requirements of ideal braking system.

Types of electrical braking systems : Plugging, rheostatic (Dynamic) and regenerative braking for D.C. series motor and three phase induction motor.
- 3.10 Elevators : Function, application, Types, its motors and safety.
- 3.11 Factors on which shape and size of car depends.
- 3.12 Bombay Lift Act 1939. (Latest Amendment).

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UNIT IV

Chapter 4 : Electric Traction

4-1 to 4-56

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4.5	Definition of average and schedule speed, factors affecting schedule speed.	
4.6	Speed-time curve : Trapezoidal and quadrilateral speed time curve and its applications.	
4.7	Current collecting system : Over head wire and conductor rail system, current collector - pantograph types.	
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UNIT V

Chapter 5 : Tariff and Power Factor Improvement

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- 5.2 Power factor : Disadvantage of low power factor, advantages of improved p.f., causes of low p.f., avoidance of low p.f. without using p.f. improvement devices.
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