

BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

Question Bank (K-Scheme)

Name of subject: Utilization of Electrical
Energy

Unit Test: II

Subject code: 314323
Semester: IV

Course: EE4K

UNIT - III

Electric Welding (CO3)

(4Marks)

1. Explain Ultrasonic Welding with neat diagram.
2. Explain Laser Welding with neat diagram.
3. Explain IGBT Controlled Welding with neat diagram.
4. Explain the principle of Electric Arc Welding with neat diagram.
5. Explain with neat labelled diagram construction and working of carbon arc welding.

UNIT – IV

Electric Drives and Elevators (CO4)

(2 Marks)

1. Define Individual and group drive.
2. State any two types of bearing and its application
3. State any two advantages and disadvantages of Group Drive
4. State any four factors governing the selection of electric drives.

5. State any two advantages and two disadvantages of individual drive.
6. State the purpose of enclosure
7. State the need of Load Equilisation

(4 Marks)

1. State the factors to be considered for selection of shape and size of elevators.
2. State the salient features of Bombay Lift Act - 1939.
3. Draw the curve and estimate suitable H.P. of motor having following duty cycle.
 - i) Rising load from 200 to 400 HP - 5 minutes
 - ii) Uniform load of 400 HP - 2 minutes
 - iii) Regenerative braking from 50 to zero HP - 1 minutes
 - iv) Idle for - 1 minute.
4. An electric motor has load as given below:
 - i) Torque 150 N.M. for 20 minutes.
 - ii) Torque 50 N.M. for 10 minutes.
 - iii) Torque 220 N.M. for 10 minutes.
 - iv) Torque 120 N.M. for 20 minutes. If the speed of the motor is 750 r.p.m. Find the power rating of motor is the efficiency is 85%.
5. State the types of elevator based on :-1) Speed 2) Capacity. State any two functions of elevator.
6. Describe the common method to achieve load equalization in industry with neat diagram.
7. List any four safety and protective devices used in elevator.

UNIT – V

Electric Traction (CO5)

(2Marks)

1. Define average speed and schedule speed in traction system.
2. List any two factors affecting the schedule speed.
3. Draw the speed - time characteristics of suburban services.
4. List various types of current collection system in electric traction.

(4 Marks)

1. Explain with neat sketch; the construction and working of pantograph collector ?
2. State different types of traction system used in India.
3. Draw and label the various parts of A.C. electric locomotive.
4. Write any eight desirable characteristics of traction motors.
5. A trapezoidal time curve of train consists of :
 - i) Uniform acceleration of 6 kmphs for 25 seconds.
 - ii) Free running for 10 minutes.
 - iii) Uniform deceleration of 6 kmphs to stop the train.
 - iv) A stop time of 5 minutes.Find the distance between the stations, average and schedule speed.
6. Describe conductor rail (third rail) current collection system.

7. Draw simplified speed time curve. Show and list various time periods associated with it.
8. Compare between urban line, sub-urban line and main line services on following points -
 - i) Distance between two railway station
 - ii) Acceleration
 - iii) Retardation
 - iv) Maximum speed
 - v) Specific energy consumption
 - vi) Free running period absent or present
 - vii) Coasting period absent or present
 - viii) Shape of speed time curve
9. A train has a schedule speed of 70 kmph between stops which are 7 km. apart. Determine the crest or maximum speed over the run. Assuming :-
 - i) Duration of stops 50 seconds
 - ii) Acceleration 2 kmphps.
 - iii) Retardation 3 kmphps. The speed time curve is trapezoidal.
10. Describe the working of Faively type pantograph with a neat sketch.