

UNIT-I -DISTRIBUTION

PART-A & PART-B QUESTIONS

1. What is substation? (APR-18) (OCT-16)
2. Mention the advantages & disadvantages of ring main system (APR-18)
3. What is the function of instrument transformer in substation? (APR-18)
4. With simple sketch explain radial system of distribution. (APR-18)
5. Mention the various electrical components in a substation. (APR-17)
6. What is A.C distribution system? Write the types of A.C distribution system. (APR-17)
7. Draw a simple ring main distribution system. (APR-17)
8. State the requirements of distribution system. (OCT-16)
9. What are the advantages of interconnected distribution system? (OCT-16)
10. What is meant by indoor substation? (APR-16)
11. What is the main consideration in designing the feeder in distribution system? (APR-16)
12. Name the various systems of D.C and A.C distribution system. (APR-16)
13. What are the ways of referring power factors, when solving AC distribution problems? (APR-16)
14. State the classification of substations.
15. What is converting substation?
16. What are the advantages and disadvantages of outdoor substations?
17. What are the different types of bus bar arrangements?
18. What is distribution system? Mention the three parts of a distribution system.
19. Differentiate between feeder, distributor & service mains in distribution system.
20. Write the classification of distribution systems.
21. What are the assumptions to be made while comparing the cost of conductors of an O.H system?
22. Explain radial system of distribution.
23. What is the purpose using G.O switch in substation?
24. What is transformer substation?
25. Write the comparisons of GIS with AIS.

PART-C QUESTIONS

1. Draw the layout of 11kV/400V sub-station & give a note on important equipments in it. (APR-18)(APR-16)
2. What will happen if neutral is disconnected in a 3 Φ four wire system? Illustrate with an example. (APR-18)
3. Draw & explain a typical double bus bar arrangement & enumerate its merits. (APR-17)
4. Distinguish between primary and secondary distribution systems. (APR-17)
5. What is indoor sub-station? Write the advantages & disadvantages of outdoor substations? (OCT-16)
6. A 1 Φ distributor 2km long supplies a load of 120amps A at 0.8 p.f lagging at its far end, a load of 80A at 0.9p.f lagging at its midpoint. Both power factors are referred to the voltage at the far end. The resistance and reactance per km (go to return) are 0.05 Ω and 0.1 Ω respectively. If the voltage at the far end is maintained at 230V calculate (i) voltage at the sending end and (ii) phase angle between voltages at the two ends. (APR-16)
7. Draw the layout of 11kV/400V sub-station & give a note on important equipments in it.
8. Draw & explain a typical single bus bar arrangement & enumerate its merits.
9. Explain radial system and ring main system of distribution.
10. Explain the various methods to solve AC distribution problems.
11. Compare the cost of conductor in A.C 1 Φ two wires system with one conductor earthed with 2 wire D.C system.
12. Compare the cost of conductor in A.C 1 Φ two wires system with midpoint earthed with 2 wire D.C system.
13. Compare the cost of conductor in A.C 1 Φ three wires system with 2 wire D.C system.
14. Compare the cost of conductor in A.C 3 Φ three wires to D.C two wires on general assumptions.
15. Compare the cost of conductor in A.C 3 Φ four wires system with 2 wire D.C system.

UNIT-II - INDUSTRIAL DRIVES

PART-A & PART-B QUESTIONS

1. What is meant by regenerative braking? **(APR-18)**
2. Which type of motor is used for cranes? **(APR-18) (OCT-16)**
3. Mention the features of good braking system. **(APR-17)**
4. Differentiate continuous & intermittent rating of motors. **(APR-17)**
5. Write the types and parts of an electric drives. **(OCT-16)**
6. What is multi motor drive? **(OCT-16)**
7. What are the advantages of group drive? **(OCT-16)**
8. What is meant by continuous rating of motor? **(APR-16)**
9. What are the factors taken into consideration while choosing a motor for industrial application? **(APR-16)**
10. What is meant by electric drive? List the advantages of an electric drives.
11. What are the electrical & mechanical characteristics to be considered while selecting a motor for particular applications?
12. Name the types of enclosures used in motors.
13. Name the different types of transmission of drives.
14. Classify & explain the standard ratings of motor.
15. Write the various classes of load duty cycles.
16. What is meant by ratings of motor?
17. Write the selection of motors for specific applications.
18. What is meant by braking & write its types?
19. Write the types of electric braking.
20. What is meant by plugging?
21. What is meant by dynamic braking/ Rheostatic braking?
22. State which type of motor is suitable for the paper mill, textile mills?
23. Mention the advantages of regenerative braking over dynamic braking.

PART-C QUESTIONS

1. Explain any four classes of duty cycles. **(APR-18)**
2. What are the features of good braking system? Explain dynamic braking as applied to cage type induction motor. **(APR-18)**
3. Explain how to select a motor for particular applications. **(APR-17)**
4. Explain how regenerative braking is applied to 3 Φ Induction motor. **(APR-17)**
5. Choose the most suitable electric motor for the following applications. Give reasons for your choice. (i) Air compressor (ii) Lift & hoists (iii) Paper mill (iv) Belt conveyor (v) Ship (vi) Punching machine **(OCT-16)**
6. Explain dynamic braking applied to DC series motor & 3 Φ Induction motor. **(OCT-16)**
7. Explain the different types of drives used in industrial load. **(APR-16)**
8. Explain with necessary sketches, matching of speed-torque characteristics of load & motor.
9. Explain briefly the regenerative braking applied to DC shunt motor & series motor.

UNIT-III - ELECTRIC TRACTION

PART-A & PART-B QUESTIONS

1. Write the different system of track electrification. **(APR-18)**
2. Write the necessity of booster transformer. **(APR-17)**
3. Mention the types of services in an electric traction system with their distance range. **(APR-17)**
4. Define specific energy consumption. **(APR-17)**
5. Mention the current collecting system employed in OH traction electrification. **(APR-17)**
6. Which type of motors is used for traction purpose? **(OCT-16)**
7. What is the method of supplying power to electric traction? **(OCT-16)**
8. Define schedule speed. **(OCT-16)**
9. List the methods of connecting booster transformer. **(APR-16)**
10. Write the methods of starting & speed control of D.C traction motors. **(APR-16)**
11. Draw the speed-time curve for main line service. **(APR-16)**
12. Which type of current collector is suitable for reversible operation in an electric traction? **(APR-16)**
13. What is meant by electric traction?
14. Mention the requirements of electric tracking and write its merits, demerits & uses.
15. Write the methods of traction system.
16. Define crest speed and average speed.
17. What is meant by tractive effort?
18. Write the specific energy output of the driving wheels.
19. Define energy consumption.
20. What are the factors affecting specific energy consumption?

PART-C QUESTIONS

1. With simple sketches, explain the two types of over head current collectors of electric traction. **(APR-18)**
2. Explain shunt transition method of series-parallel transition. **(APR-18)**
3. With a neat diagram, explain the series-parallel control of DC traction motors **(APR-18)**
4. Explain various system of track electrification. **(APR-17)**
5. Show that series-parallel control of traction motor results in a saving of energy than plain rheostatic control. **(OCT-16)**
6. Explain different methods of connecting booster transformer. **(OCT-16)**
7. Explain shunt & bridge transition. **(APR-16)**
8. With a neat sketch, explain multiple unit control. **(APR-16)**
9. Draw a typical speed-time curve & explain each constituent of it.
10. Derive from basic principle for the crest speed using trapezoidal speed-time curve. State all your assumption clearly with relevant units.
11. Explain the desirable characteristics of traction motors.
12. Derive an expression for tractive efforts for propulsion of train.
13. Explain recent trends in electric traction.

UNIT-IV- ILLUMINATION

PART-A & PART-B QUESTIONS

1. Define luminous flux. **(APR-18)**
2. What are the requirements of good lighting system? **(APR-18)**
3. Write a note on flood lighting. **(APR-18)**
4. Define illumination. **(APR-17)**
5. Mention the two laws of illumination. **(APR-17)**
6. What is CFL? **(APR-17) (OCT-16)**
7. Mention the types of indoor lighting schemes. **(APR-17)**
8. What is glare? **(OCT-16)**
9. What is indirect lighting scheme? **(OCT-16)**
10. Define solid angle. **(OCT-16)**
11. What is luminous intensity? **(APR-16)**
12. What are the factors to be considered, while designing a lighting scheme? **(APR-16)**
13. What is stroboscopic effect? **(APR-16)**
14. Give two examples for energy saving lamps. **(APR-16)**
15. Define plane angle.
16. Define candle power.
17. Define lumen.
18. Define M.S.C.P
19. Define M.H.C.P
20. Define M.H.S.C.P
21. What is meant by reduction factor?
22. Define luminance or brightness.
23. Define lamp efficiency.
24. Define space height ratio.
25. Define depreciation factor.
26. Define maintenance factor.
27. What is meant by utilization or co-efficient of utilization?
28. Define absorption factor.
29. Define beam factor.
30. Define reflection factor.
31. Define inverse square law.
32. Define Lambert's cosine law.
33. Write the types of lighting scheme.
34. What is flood lighting?
35. Name the electrical sources of light.
36. Compare filament lamp and fluorescent lamp.
37. Name the two energy saving lamps.

PART-C QUESTIONS

1. Explain the two laws of illumination with simple sketches. **(APR-18) (APR-17) (APR-16)**
2. Draw the constructional diagram of sodium vapour lamp and explain its operation. **(APR-18) (OCT-16)**
3. With a neat diagram explain the working of high pressure mercury vapour lamp. **(APR-17)**
4. It is required to provide an illumination of 100 lux in a factory hall 30m x 15m. Assume that the depreciation factor is 0.8, coefficient of utilization is 0.4 and efficiency of lamp is 14 lumens/watt. Suggest the number of lamps and their ratings. The sizes of lamps available are 100, 250, 400 and 500 watts. **(OCT-16)**

5. Explain various types of lighting scheme. (APR-16)
6. Explain the principle of operation of an incandescent lamp.
7. Explain the operation of H.P.M.V lamps of quartz version.
8. Explain stroboscopic effect and how it is eliminated in fluorescent tube light.
9. Explain the various factors to be taken into account for design scheme for lighting and flood lighting.
10. Explain the factors to be considered while designing lighting scheme.
11. Write short notes a halogen lamp.
12. Explain the operation of fluorescent lamp.
13. Explain the operation of CFL lamp.
14. Explain the operation of LED lamp.

UNIT-V - ELECTRIC HEATING AND WELDING

PART-A & PART-B QUESTIONS

1. Mention the modes of heat transfer. (APR-18)
2. Classify electric heating system. (APR-18)
3. Mention the factors to be considered while preparing work for welding. (APR-18)
4. What are the advantages of electric heating? (APR-17)
5. Which electrical component principle is used in dielectric heating? (APR-17)
6. What is the main reason for employing low voltage, high current supply to arc furnace? (APR-17) (OCT-16)
7. Draw the arrangement of laser beam welding. (APR-17)
8. Write the applications of dielectric heating. (OCT-16)
9. What is the advantage of laser beam welding? (OCT-16)
10. Give the commonly used heating element materials. (OCT-16)
11. Write the types of resistance welding. (APR-16)
12. How current control can be achieved in transformer type welding machine? (APR-16)
13. Write the advantages of AJAXWYATT vertical core type induction furnace. (APR-16)
14. Why high frequency supply is required for coreless induction furnace? (APR-16)
15. How are heating methods classified based on temperatures ranges?
16. State the requirements of heating element material.
17. State the two types of welding equipments.

PART-C QUESTIONS

1. Explain the principle of eddy current and dielectric heating methods with simple sketches. (APR-18)
2. With simple diagram explain the working of ultrasonic welding system. (APR-18)
3. Draw the arrangements of coreless induction furnace and explain its operation. (APR-17)
4. With simple sketch explain the working of atomic hydrogen arc welding. Mention its advantages. (APR-17)
5. With neat sketch, explain electron beam welding. (OCT-16)
6. Explain the following methods of controlling welding current in transformer type welding machine (i) Moving coil method (ii) Magnetic shunt method (iii) saturable reactor method. (OCT-16)
7. Explain: (i) Atomic hydrogen arc welding (ii) Ultrasonic welding. (APR-16)
8. Explain the operation of a direct core type induction furnace & list its drawbacks. (APR-16)
9. Explain the different types of Resistance heating.
10. Explain the construction and advantages of Laser welding and state its applications.
11. Explain the operation of an Ajax Wyatt vertical core type furnace.
12. Explain any three types of arc welding.
13. Explain ultrasonic welding.