Electric Traction & Control (3350907)

Question Bank

Unit – 3 Traction Motors and Their Control

Motors & Speed Control

1. Write electrical features of traction motor.
2. List various types of motors used for traction purpose.
3. List different parts of DC Motor.
4. List various parts of Induction motor.
5. Draw and explain speed torque characteristics of dc series motor.
6. Draw and explain speed torque characteristics of dc shunt motor.
7. Draw and explain speed torque characteristics of 3 phase induction motor
8. Why dc series motor is best suited for traction system? Explain.
9. Explain speed control of DC Motor.
10. Write different methods for speed control of D. C. Motor.
11. Explain characteristics and constructional features of ac series motor.
12. Explain with reasons why low frequency supply is given to a.c.series motor
13. Write advantages and disadvantages of repulsion motor for traction duty. Draw schematic diagram of repulsion motor.
14. Explain the principle of magnetic levitation.
15. Explain working of linear induction motor.
16. List advantages and disadvantages of Linear induction motor
17. Compare various methods of starting dc traction motors w r t starting efficiency, speed.
18. Explain the working principle of Pulse width modulation control.

Controls

19. Draw and explain series parallel control for 4 motors.
20. Explain transition. Explain working of shunt and bridge transition with diagram.
21. Explain Metadyne control for traction motors
22. State the functions of master controller for traction
23. Explain the working of multiple unit control with neat diagram

Braking

24. Write the types electrical braking.
25. Explain regenerative braking system used for ac series motor.
26. What is plugging? How it is employed to dc series motor?

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Unit – 4 Electric Locomotives and Auxiliary Equipment

Locomotives

1. Write different types of electric locomotive
2. Explain the specifications of D.C locomotive
3. Draw the layout of dc locomotive and label the main components
4. Draw the layout of single phase ac locomotive and label the main components
5. Draw power circuit diagram of composite locomotive, state and explain functions of main equipments used in it.
6. List major equipments used in electric locomotives and explain any two.

Current Collection

7. Explain conductor rail system
8. Write various types of overhead current collecting systems.
9. Explain construction and working of pantograph current collector with diagram.
10. Write different types of catenary system. Explain any one.
11. Explain the construction and working of double caternary system

Power Transmission - Mechanical Drives

12. List the different types of mechanical drive for locomotive
13. Give advantages and disadvantages of direct quill drive
14. Give advantages and disadvantages of fully suspended drive
15. Explain nose suspension drive for power transmission

Coach Wiring & Auxiliary Equipments

16. Explain single battery coach wiring system
17. Describe double battery coach wiring scheme with diagram
18. List the auxiliary equipments used in electric locomotive
19. Explain magnetic light switch
20. Explain auto cut-in auto cut-out switch
21. Explain the working of battery change over switch
22. Explain the function of Arno convertor
23. Explain working principle of Rosenberg Generator

Refinements

24. Write a note on radio interference suppression
25. List the steps to be taken to reduce disturbance due to harmonics of A.C. traction.