



# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Accredited by NAAC-UGC with 'A++' Grade (Cycle III) &

Accredited by NBA (B.E - CSE, EEE, ECE, Mech & B.Tech.IT)



## DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

### 23EEB210 – ELECTRICAL MACHINES & DRIVES

#### QUESTION BANK

#### UNIT I: OVERVIEW OF ELECTRICAL DRIVE

##### Part A – 2 Marks

1. Define an electrical drive.
2. What are the basic elements of an electrical drive?
3. Differentiate between a mechanical drive and an electrical drive.
4. List the advantages of electrical drives.
5. What are the different types of electric drives?
6. Define a constant torque drive.
7. Explain the significance of variable speed drives.
8. What are the factors influencing the choice of electrical drives?
9. Define heating time constant of an electric motor.
10. Explain the importance of cooling curves in electric motors.
11. What is meant by transient heating in electrical machines?
12. Define classes of duty for an electrical motor.
13. What is the significance of duty cycle in drive selection?
14. Explain the concept of overload capacity in electrical drives.
15. What is the effect of supply voltage variation on an electric drive?
16. Define torque-speed characteristics of an electric motor.
17. What is meant by regenerative braking?
18. Differentiate between dynamic and plug braking.
19. What is meant by the load torque of a drive?
20. List the applications of electric drives.
21. What is meant by speed-torque characteristics?
22. Define duty cycle in an electrical drive.
23. What is a continuous duty motor?
24. Explain the effect of temperature rise on motor performance.
25. What is the significance of thermal overloading?

##### Part B – Detail

1. Explain the basic elements of an electrical drive with a neat block diagram.
2. Discuss the types of electric drives and their applications.
3. Explain the factors influencing the selection of electrical drives.
4. Derive the heating and cooling curves for an electrical motor.
5. Explain different classes of duty in electrical drives.
6. Discuss the impact of thermal overloading on electric drives.

7. Describe the process of selecting the power rating for a drive motor.
8. Explain the various torque-speed characteristics of different motors.
9. Compare and contrast mechanical and electrical drives.
10. Discuss the role of regenerative braking in electric drives.
11. Explain transient heating and cooling in electrical machines.
12. What are the considerations for selecting a drive motor for industrial applications?
13. Discuss the influence of voltage and frequency variation on motor performance.
14. Explain the load torque-speed characteristics of different applications.
15. Describe various braking methods used in electrical drives.
16. Explain how thermal modeling is used to predict machine performance.
17. Compare constant torque and constant power drive applications.
18. Discuss the concept of acceleration and deceleration in electrical drives.
19. Explain the different methods of load equalization.
20. Describe the role of power converters in electrical drives.
21. Discuss the advantages and limitations of electric drives over mechanical drives.
22. What are the challenges in designing an electric drive system?
23. Explain the significance of motor protection in electrical drives.
24. Discuss the importance of temperature monitoring in drive selection.
25. Explain the concept of drive efficiency and losses.