

Assignment 1

1. What is the difference between a three-phase induction motor and a single-phase induction motor?
2. Explain the working principle of a three-phase induction motor.
3. What are the different types of rotor constructions used in a three-phase induction motor?
4. What is the slip in a three-phase induction motor? How is it calculated?
5. How do you determine the maximum torque that a three-phase induction motor can produce?
6. What is the difference between the synchronous speed and the actual speed of a three-phase induction motor?
7. A three-phase induction motor is rated at 10 horsepower and operates at 90% efficiency. What is the input power required to drive the motor?
8. A three-phase induction motor is supplied with 440 volts and draws a current of 25 amps. If the power factor of the motor is 0.85, what is the output power of the motor?
9. A three-phase induction motor has a rated speed of 1,800 RPM and a slip of 5%. What is the actual speed of the motor when it is operating at full load?
10. A three-phase induction motor has a rotor resistance of 0.2 ohms and a rotor reactance of 0.4 ohms. If the motor is operating at 1,800 RPM and has a slip of 4%, what is the rotor current and rotor power at full load?