Chapter 12

1. What is the difference in construction details between a three-phase squirrel-cage motor and a three-phase synchronous motor?
2. State the correct procedure for (a) starting a three-phase synchronous motor, (b) stopping the motor, and (c) reversing the motor.
3. Explain the purpose of a field-discharge resistor that is connected across the field circuit of a synchronous motor.
4. How is the speed of a synchronous motor adjusted?
5. What is cemf, and how does it affect synchronous motor operation?
6. What can cause a synchronous motor to fail to pull into synchronism?
7. Assuming that a synchronous motor is operating at rated load and 1.0 pf, what effect does increasing the field current to the magnets have on the torque angle and on the power factor?
8. What damaging effects can be produced when a synchronous motor pulls out of synchronism? Assume that the stator and rotor circuits are still energized.
9. What remedial action should be taken when a synchronous motor pulls out of synchronism?
10. Explain why the increase in stator current, with increased loading, enables the rotor to remain in synchronism.