Chapter 14

1. What adjustments can be made to an operating AC generator to change the generated voltage?
2. What adjustment can be made to an operating AC generator to change its frequency?
3. Explain the operation of a brushless excitation system used with some AC generators.
4. Outline the steps required for paralleling an AC generator with another one already on the bus. Assume that the machine on the bus is operating at 460 V, 60 Hz, and has a 300-kW load at 0.8 pf lagging. Include the correct procedure for dividing the active and reactive components of the bus load equally.
5. Why is it good practice to start the breaker-closing operation 1° or 2° before the 0° position?
6. Why is it good practice to balance both the kW and kvar load in proportion to the kW ratings of the machines?
7. What is motorization? Is it harmful? How can it be detected and corrected?
8. What effect do different governor droop characteristics have on the division of oncoming load between generators? Explain with the aid of a sketch.
9. Two generators A and B are in parallel, taking equal shares of the bus load. The governor of prime-mover A has zero speed droop, and the governor of B has a 2 percent speed droop. If an additional 100-kW load is connected to the bus, what percentage of the additional load will be taken by each machine?
10. What will happen if a generator in parallel with others loses its field excitation?