Module 21

Unit 5

1. How is an AC alternator different in construction from a DC generator?

2. Why is a revolving armature type generator not typically used?

3. What is the purpose of the brushes and slip rings in an revolving field AC alternator?

4. Describe the stator in a revolving field AC alternator?

5. What are the advantages of the revolving field AC alternator over the revolving armature AC generator?

6. What are the two types of construction for the revolving field AC generator?

7. Where is the salient-pole AC alternator used?

8. Why are cylindrical rotors used for high-speed applications? What characteristics make it suitable?

9. What are the most common methods for exciting the DC field in an AC alternator?

10. What is the purpose of the field discharge circuit in an AC alternator?

11. What are two advantages of brushless exciters on AC alternators?

12. How is the size of an AC alternator specified on the nameplate?

13. What is the formula for frequency of an AC generator?

14. What is the only practical way to control an AC alternator?

15. What is the terminal voltage of an AC alternator with no load connected to the circuit?

16. What two factors affect terminal voltage in an AC alternator?
17. What is percent voltage regulation for an AC alternator?

18. How much armature reaction occurs in a motor at unity power factor?

19. How does a load with a leading power factor affect terminal voltage in an AC alternator?

20. How does a load with a lagging power factor affect terminal voltage in an AC alternator?

21. How do automatic voltage regulators work to keep terminal voltage constant in an AC alternator?

22. What are the advantages of the series wye connection for an AC alternator?

23. What are the advantages of the parallel wye connection for an AC alternator?

24. What are the advantages of the series delta connection for an AC alternator?

25. What are the advantages of the parallel delta connection for an AC alternator?

26. How does the different connection combinations affect the kVA rating of an AC alternator?

27. Why are some AC alternators not designed for both wye and delta connection?

28. Why are AC alternators often paralleled?

29. Why is it necessary to synchronize AC alternators before connecting them to a common line?

30. What are two methods for making sure alternators are in step before connecting them to a common line?

31. What is the main problem with the “three dark” method of synchronizing alternators?
32. Using the “two bright, one dark” method of synchronizing alternators, what is the indication to close the switch?

33. What is indicated when the pointer of a synchroscope stops moving? What is not indicated?

34. What is indicated when the pointer of a synchroscope stops in the vertical upright position?

35. Briefly, what are the steps involved in paralleling two alternators?

36. What does the term “floating online” mean in relation to AC alternators?

37. How is the load adjusted between two AC alternators connected to a common bus? What precaution must be taken?

38. What is the result of increasing the field current on paralleled AC alternators?

39. What is “drooping speed-load” characteristics and how does it affect paralleled AC alternators?

40. What is “hunting” in relation to paralleled AC alternators? How is it minimized?

The End