

**Chettinad**

College of Engineering & Technology

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Department of EEE**EE8401 –Electrical Machines-II****Unit II - MCQ Bank**

1.The speed of a synchronous motor can be changed by Changing the supply voltage

- A. Changing the frequency**
- B. Changing the load
- C. Changing the supply Terminals
- D. Both

Answer:A

2. In a synchronous motor running with the fixed excitation, when the load is increased two times, its torque angle becomes approximately

- A. Half
- B. Twice**
- C. Four Times
- D. No Change

Answer:B

3.A three-phase synchronous motor will have

- A. One slip-ring
- B. Two slip Rings**
- C. No slip-rings
- D. Three slip-rings

Answer:B

4.The under-excited synchronous motor takes_____

- A. Leading current
- B. Lagging current**
- C. Both leading and lagging current
- D. None of these

Answer:B

5.Power factor correction substations consist of

- A. Rectifiers
- B. Inverters
- C. Synchronous condenser**
- D. Transformers

Answer:C

6. Synchronizing power of a synchronous machine is
- A. Directly proportional to the synchronous reactance
 - B. Equal to the synchronous reactance
 - C. Inversely proportional to the synchronous reactance**
 - D. None of these

Answer:C

7. The normal starting methods that are used to start a synchronous motor is Star-delta starter
- A. Damper winding
 - B. Resistance starter in the armature circuit
 - C. Damper winding in conjunction with the star-delta starter**

Answer:C

8. At what condition synchronous motor can be used as a synchronous capacitor **2018**
- A. Under-loaded
 - B. Under-excited
 - C. Over-loaded
 - D. Over-excited**

Answer:D

9. Synchronous motor do not have self-starting property because
- A. Starting winding is not provided on the machines
 - B. The direction of rotation is not fixed
 - C. The direction of instantaneous torque reverses after the half cycle**
 - D. Starters cannot be used on these machines

Answer:C

10. The over-excited synchronous motor takes
- A. Leading current**
 - B. Lagging current
 - C. Both leading and lagging current
 - D. None of the above

Answer:A

11. The maximum power developed in a synchronous motor will depend on
- A. The rotor excitation and supply voltage
 - B. The rotor excitation, supply voltage, and maximum value of coupling angle**
 - C. The supply voltage only
 - D. The rotor excitation only

Answer:B

12. Name the equipment **which runs an alternator**
- A. Prime Mover**

- B. Generator
- C. Motor
- D. Fan

Answer:A

13. Synchronous Motor Shaft is Made of

- A. Alnico
- B. Chrome Steel
- C. Mild Steel**
- D. Stainless Steel

Answer:C

14. When the voltage applied to a synchronous motor is increased, which of the following will reduce?

- A. Stator Flux
- B. Pull in Torque
- C. Pull out Torque
- D. None of these**

Answer:D

15. A synchronous motor has a better power factor than an induction motor. This is due to

- A. Stator supply is not required to produce the magnetic field**
- B. Synchronous Motor has no Slip
- C. Mechanical Load on the rotor remain constant
- D. Synchronous motor has a large air gap

Answer:A

16. When the field circuit of an unloaded salient pole synchronous motor gets suddenly open circuited, then

- A. The Motor Stops**
- B. It runs at a slower speed
- C. It continues to run at the same speed
- D. It runs at a very high speed

Answer:A

17. The armature current of a synchronous motor is minimum when operating at

- A. Unity Power factor**
- B. 0.707 Power factor lagging
- C. 0.707 power factor leading
- D. Zero power factor leading

Answer:A

18. The resultant armature voltage of a synchronous motor is equal to the_____.

- A. **Vector sum of E_b and V**
- B. Vector difference of E_b and V
- C. Arithmetic sum of E_b and V
- D. Arithmetic difference between E_b and V

Answer:A

19. In a synchronous motor the rotor copper losses, are met by

- A. Armature input
- B. **D.C source**
- C. Motor input
- D. Supply lines

Answer:B

20. The change of D.C. excitation of a synchronous motor changes

- A. Motor Speed
- B. Applied voltage of the Motor
- C. **Power Factor**
- D. All Option is correct

Answer:C

21. The advantage of a stationary armature of a synchronous machine is

- A. Reducing the number of slip rings on the rotor
- B. The difficulty of providing high voltage insulation on the rotor
- C. The armature is associated with large power as compared to the field circuits
- D. **All option are correct**

Answer:D

22. In which of the following motors the stator and rotor fields rotate simultaneously

- A. Reluctance motor
- B. Universal Motor
- C. D.C Motor
- D. **Synchronous Motor**

Answer:D

23. In a 3-phase synchronous motor, If the direction of its field current is reversed

- A. The winding of the motor will burn
- B. The motor will stop
- C. The motor will run in the reverse direction
- D. **The motor continues to run in the same direction**

Answer:D

24. The maximum power developed in a synchronous motor will depend on
- A. The rotor excitation and supply voltage
 - B. The rotor excitation, supply voltage and maximum value of coupling angle**
 - C. The supply voltage only
 - D. The rotor excitation only

Answer: B

25. The power factor of a synchronous motor, When the field is under-excited
- A. Leading
 - B. Unity
 - C. Lagging**
 - D. Zero

Answer: C

26. To limit the operating temperature of the synchronous motor, it should have proper
- A. Current Rating**
 - B. Voltage Rating
 - C. Power Factor
 - D. Speed

Answer: A

27. A synchronous machine with large air gap has
- A. A higher value of stability limit
 - B. A higher synchronizing power
 - C. A small value of regulation
 - D. All options are correct**

Answer: D

28. Synchronous motor speed
- A. Decreases as the load decreases
 - B. Increases as the load increases
 - C. Always remains constant**
 - D. None of these

Answer: C

29. The magnitude of field flux in a 3-phase synchronous machine
- A. Varies with speed
 - B. Remains constant at all loads**
 - C. Varies with power factor
 - D. Varies with the load

Answer: B

30. In a synchronous motor, the magnitude of back e.m.f depends on

- A. The speed of the motor
- B. DC excitation Only**
- C. Load on the motor
- D. Both the speed and rotor flux

Answer: B

31. The speed of the rotor magnetic flow in the rotor body is

- A. Synchronous
- B. Asynchronous**
- C. Zero
- D. None of these

Answer: B

32. Which one of the following can be obtained by the equivalent circuit of an electrical machine?

- A. Temperature rise in the cores
- B. Complete performance characteristics of the machine**
- C. Type of protection used in the machine
- D. Design Parameters of the windings

Answer: B

33. A 10 pole 25 Hz alternator is directly coupled to and is driven by 60 Hz synchronous motor then the number of poles in a synchronous motor is?

- A. 24 poles**
- B. 48 poles
- C. 12 Poles
- D. None of the above

Answer: A

34. A silent pole synchronous motor is operating at one-fourth full load if the field current is suddenly switched off, it would?

- A. Run at super-synchronous Speed
- B. Stop Running
- C. Run at sub-synchronous Speed
- D. Continue to run at synchronous speed**

Answer: D

35. The negative phase sequence in a 3-phase synchronous motor exists when the motor is

- A. Underloaded
- B. Overloaded
- C. Supplied with Unbalanced voltage**
- D. Hot

Answer:C

36. For cooling of large size generators hydrogen is used because

- A. It offers reduced fire risk
- B. It is light in weight
- C. It is of high thermal conductivity
- D. All of the above**

Answer:D

37. How many categories can the synchronous motors be divided into?

- A. 4
- B. 3
- C. 5**
- D. 2

Answer:C

38. How is the hydro-generator driven by?

- A. water turbine**
- B. steam turbine
- C. internal combustion engines
- D. control of reactive power networks

Answer:A

39. What is the rating of the hydro-generators?

- A. 750 MW**
- B. 1000 MW
- C. 20 MW
- D. 700 MW

Answer:A

40. What is the speed by which the hydro-generators are driven?

- A. 100-1000 rpm**
- B. 5000 rpm

- C. 1500 rpm
- D. 3000 rpm

Answer:A

41. How is the turbo-alternators driven by?
- A. water turbines
 - B. steam turbines**
 - C. engine driven generators
 - D. compensators

Answer:B

42. What is the speed of the turbo-alternators?
- A. 100-1000 rpm
 - B. 5000 rpm
 - C. 1500 rpm
 - D. 3000 rpm**

Answer:D

43. What is the rating of the turbo-alternators?
- A.750 MW**
 - B. 1000 MW
 - C. 20 MW
 - D. 700 MW

Answer:A

44. How is the engine driven generators driven by?
- A. water turbines
 - B. steam turbines**
 - C. internal combustion engine
 - D. compensators

Answer:B

45. What is the rating of the engine driven generators?
- A. 750 MW
 - B. 1000 MW
 - C. 20 MW**
 - D. 700 MW

Answer:C

46. What is the speed of the engine driven generators?

- A. 100-1000 rpm
- B. 5000 rpm
- C. 1500 rpm
- D. 3000 rpm

Answer:A

47. The synchronous motors are cheaper than the induction motors.

- A. true**
- B. false

Answer:A

48. Which among the following are the applications of synchronous motors?

- A. compressors
- B. blowers
- C. fans
- D. compressors, fans, blowers**

Answer:D

49. What is the application of synchronous compensators?

- A. control of real power
- B. control of active power
- C. control of reactive power**
- D. control of apparent power

Answer:C

50. What is the rating of the synchronous generators?

- A. 750 MVA
- B. 1000 MVA
- C. 100 MVA**
- D. 700 MVA

Answer:C

51. What is the speed of the engine driven generators?

- A. 100-1000 rpm
- B. 5000 rpm

- C. 1500 rpm
- D. 3000 rpm**

Answer:D

52. How many factors are involved in the construction of hydro-generators?
- A. 11
 - B. 10**
 - C. 9
 - D. 8

Answer:B

53. Which factor does the constructional feature of the hydro-generators depend on?
- A. speed**
 - B. voltage
 - C. power
 - D. current

Answer:A

54. What factors does the speed of the machines depend upon?
- A. head
 - B. blades
 - C. type of turbine used
 - D. head and type of turbine used**

Answer:D

55. Why is the stator core built up of laminations?
- A. to reduce core loss
 - B. to reduce copper loss
 - C. to reduce iron loss
 - D. to reduce eddy current loss**

Answer:D

56. The modern synchronous machines make use of non-directional cold rolled steel.
- A. true**
 - B. false

Answer:A

57. What is the thickness of the most commonly used grade for stator laminations?
- A. 0.5 mm**

- B. 1 mm
- C. 1.5 mm
- D. 2 mm

Answer:A

58. What is the range of the outside diameter of the stator frame of the large hydro-generator?

- A 3-18 m
- B. 2-18 m
- C. 3.5-18 m**
- D. 4-18 m

Answer:C

59. How are the stator windings of all synchronous generator connected?

- A. star-delta connection
- B. star connection**
- C. star connection with neutral earthed
- D. delta connected

Answer:B

60. What among the following is the advantages of the star connection?

- A. eliminates single frequency harmonics
- B. eliminates double frequency harmonics
- C. eliminates triple frequency harmonics**
- D. eliminates sinusoidal harmonics

Answer:C

61. The capacity of the pull out machines used for making the coils limits the pole pitch to less than 0.8 m.

- A. true**
- B. false

Answer:A

62. What is the main advantage of a winding with multi-turns coils?

- A. reduce the choosing of the value of stator slots
- B. allows greater flexibility in selecting the value of stator slots**
- C. increases the flexibility in selecting the number of stator slots
- D. has no effect on the number of stator slots

Answer:B

63. What happens to the current in the windings during the sudden short circuits at the line terminals?

- A. the current reduces to 15 times the full load current
- B. the current increases to 15 times the full load current**
- C. the current reduces to 10 times the full load current
- D. the current increases to 10 times the full load current

Answer:B

64. What happens to the electromagnetic forces during the sudden short circuits at the line terminals?

A. the electromagnetic forces get increased by 250 times the force under normal full load condition

B. the electromagnetic forces get decreased by 250 times the force under normal full load condition

C. the electromagnetic forces get increased by 200 times the force under normal full load condition

D. the electromagnetic forces get decreased by 200 times the force under normal full load condition

Answer:A

65. What should be done to the conductors in the overhang of the stator?

- A. bracing**
- B. shaving
- C. punching
- D. compressing

Answer:A

66. How many steel brackets are used along with the support to steel rings?

- A. 5
- B. 7
- C. 4-6**
- D. 5-9

Answer:C

67. If a synchronous motor working at leading power factor can be used as (SSC-2015)

- A. Mechanical Synchronizer
- B. Voltage Booster
- C. Phase Advancer**
- D. Noise Generator

Answer:C

68.For V-curve for synchronous motor, the graph is drawn between (SSC-2015)

- A. Armature current and power factor
- B. Field current and armature current**
- C. Terminal voltage and load factor
- D. Power factor and field current

Answer:B

69.Starting torque of synchronous motor is

- A. Very low
- B. Zero**
- C. Very high
- D. Half-full load torque

Answer:B