Register No.:

1181

October 2026

Time – Two hours
(Maximum Marks: 60)

N.B. 1. Answer all questions under Part-A. Each question carries 1 mark.
2. Answer any 5 questions under Part-B. Each question carries 2 marks.
3. Answer any 3 questions under Part-C. Each question carries 10 marks.

PART – A

1. Armature winding of an alternator is placed in :

   a) Shaft

   b) Rotor slots

   c) Stator slots

   d) Yoke

2. In a double-layer winding, the number of coil sides per slot is ...

   a) One

   b) Two

   c) Three

   d) Four

3. Which of the following is a type of exciter?

   a) DC Generator

   b) Rectifier

   c) Both a and b

   d) Transformer

4. The most efficient cooling method for large alternators is :
   a) Air cooling
   b) Hydrogen cooling
   c) Oil cooling
   d) Water cooling

5. Leakage reactance is due to
   a) Leakage flux not linking with all turns
   b) Resistance of conductors
   c) Eddy currents
   d) Magnetic saturation

6. Armature reaction at unity power factor is :
   a) Demagnetizing
   b) Cross-magnetizing
   c) Magnetizing
   d) Zero

7. The effective resistance of an armature winding is :
   a) Less than its DC resistance
   b) Equal to its DC resistance
   c) More than its DC resistance
   d) Zero

8. The voltage regulation of an alternator operating at a leading power factor is usually :
   a) Positive
   b) Negative
   c) Zero
   d) Very high

9. An induction motor works as an induction generator when
   a) Rotor speed > synchronous speed
   b) Rotor speed < synchronous speed
   c) The motor runs at synchronous speed
   d) The motor is at standstill

10. The main advantage of a slip ring IM over a squirrel cage IM is :
   a) Low cost
   b) High starting torque
   c) Simple construction
   d) Maintenance-free

11. The difference between synchronous speed (Ns) and rotor speed (N) is called :
   a) Slip
   b) Slip frequency
   c) Lag
   d) Regulation

12. The rotor of a squirrel cage induction motor is made of :
   a) Laminated core with slots and copper bars
   b) Wound type with slip rings
   c) Solid iron core
   d) Permanent magnets

13. Split-phase motors use :
   a) Starting winding in parallel with main winding
   b) Starting winding and main winding are in series
   c) Only one main winding
   d) Capacitor connected in rotor

14. Universal motor can run on :
    a) AC only
    b) DC only
    c) Both AC and DC
    d) High frequency AC only

15. In a capacitor-start capacitor-run motor, how many capacitors are used?
    a) One
    b) Two
    c) Three
    d) None

16. The motor mostly used in ceiling fans is
    a) Capacitor start motor
    b) Universal motor
    c) Shaded pole motor
    d) Capacitor start and run motor

17. Damper winding in synchronous motor is similar to :
    a) Stator winding of ac machine
    b) Short circuited bars in cage rotor
    c) Slip rings of wound rotor
    d) Armature winding of DC machine

18. The Switched Reluctance Motor (SRM) operates on the principle of :
    a) Electromagnetic induction
    b) Variable reluctance
    c) Permanent magnetism
    d) Hysteresis

19. The main disadvantage of a synchronous motor is:

a) Its inability to control power factor

b) Its complex construction and need for DC excitation

c) Its high starting torque

d) Its variable speed

20. V-curves of synchronous motor show relation between

a) Power and torque

b) Armature current and field excitation

c) Speed and torque

d) Power factor and slip

PART – B

21. List the advantages of rotating field.
22. Write the methods of cooling of alternators.
23. Define synchronous reactance.
24. What does the dark lamp method indicate in alternator synchronizing?
25. Define slip frequency.
26. What is cogging in induction motors?
27. Write the types of single phase motors.
28. Write any two applications of synchronous motor.

PART – C

29. Explain the construction and working principle of alternator with a neat diagram.
30. Describe the direct load test method for determining voltage regulation of an alternator.
31. Explain the working of Star-Delta starter for a three-phase induction motor with a circuit diagram.
32. Explain the construction and working principle of three phase motor with single phase supply.
33. Explain the operation of synchronous motor with neat diagram.
