UNIT 2: ELECTRICAL MACHINES

1. **Which of the following machines is used for converting mechanical energy into electrical energy?**
   a) DC Motor
   b) DC Generator
   c) Induction Motor
   d) Synchronous Generator

2. **Which of the following is a type of synchronous machine?**
   a) Induction motor
   b) DC motor
   c) DC generator
   d) Synchronous motor

3. **In a DC motor, the direction of current flow in the armature is reversed using:**
   a) Commutator
   b) Rotor
   c) Stator
   d) Slip rings

4. **What type of current is generated by a DC generator?**
   a) Alternating current
   b) Pulsating current
   c) Direct current
   d) Both DC and AC

5. **The efficiency of a transformer is highest when it operates at:**
   a) Full load
   b) No load
   c) Half load
   d) Rated voltage

6. **What is the function of the field winding in a DC motor?**
   a) To generate the back EMF
   b) To produce the magnetic field
   c) To control the motor speed
   d) To supply power to the armature

7. **In a transformer, the primary and secondary windings are linked by:**
   a) Magnetic flux
   b) Electric field

c) Capacitive coupling
d) Inductive coupling

8. **The torque produced in an induction motor is due to:**
   a) Electromagnetic induction
   b) Electromagnetic torque
   c) Magnetic field
   d) All of the above

9. **Which of the following is a characteristic of a squirrel-cage induction motor?**
   a) High starting torque
   b) Low starting current
   c) No slip rings
   d) Both b and c

10. **The synchronous speed of a 4-pole motor running on a 50 Hz supply is:**
    a) 1500 rpm
    b) 1200 rpm
    c) 3000 rpm
    d) 2400 rpm

11. **The starting current of a three-phase induction motor is typically:**
    a) 1-2 times full-load current
    b) 5-7 times full-load current
    c) 10 times full-load current
    d) Equal to full-load current

12. **In a transformer, the primary and secondary windings are wound on:**
    a) Same core
    b) Different cores
    c) One coil
    d) No core

13. **Which of the following is a DC motor?**
    a) Shunt motor
    b) Series motor
    c) Compound motor
    d) All of the above

14. **The efficiency of a transformer is given by the ratio of:**
    a) Input power to output power
    b) Output power to input power

c) Input current to output current
d) None of the above

15. **In a single-phase induction motor, the capacitor is used to:**
    a) Increase torque
    b) Decrease speed
    c) Improve power factor
    d) Reduce noise

16. **The armature reaction in a DC motor results in:**
    a) Increase in flux
    b) Decrease in torque
    c) Distortion of the flux distribution
    d) Stable operation

17. **In a three-phase induction motor, the speed depends on:**
    a) Load
    b) Frequency
    c) Voltage
    d) Number of poles

18. **Which of the following DC motors has high starting torque?**
    a) Shunt motor
    b) Series motor
    c) Compound motor
    d) All of the above

19. **In a synchronous motor, the rotor rotates at:**
    a) Speed below synchronous speed
    b) Speed above synchronous speed
    c) Synchronous speed
    d) Zero speed

20. **Which of the following is used to adjust the speed of a DC motor?**
    a) Armature resistance
    b) Field winding resistance
    c) Both a and b
    d) Slip rings