

R-2012  
SE (SEM IV) ELECTRONICS  
ELECTRICAL MACHINES  
SAMPLE PAPER

1. Which of the following is not a type of dc machine  
01  
a) shunt machine    b) series machine    c) shaded pole machine    d) compound machine.
2. Which of the following is not a part of dc machine  
01  
a) Armature    b) commutator    c) slip rings    d) brushes
3. The ef equation of dc machine is  
a)  $E = \frac{PN\phi A}{60Z}$     b)  $E = \frac{PA\phi Z}{60N}$     c)  $E = 60 \frac{PN\phi Z}{A}$     d)  $E = \frac{PN\phi Z}{60A}$
4. In a 3-phase induction motor, the speed of stator field with respect to stator conductors is  
a) 0 rpm    b) synchronous speed    c) synchronous speed- rotor speed    d) rotor speed
5. The synchronous speed of 3 phase induction motor is given by \_\_\_\_\_, where  
Ns =synchronous speed, f= supply frequency P number of poles.  
a) 120f/P    b) PN<sub>s</sub>/f    c) 120P/f    d) 120Pf
6. Which of the following is not a type of 3 phase induction motor  
01  
a) slip ring    b) squirrel cage    c) stepper motor    d) wound rotor
7. The approximate ration of main winding and the starting windingon the stator of a split phase induction motor is  
01  
a) 2/3 and 1/3    b) 1/3 and 2/3    c) ¼ and ¾    d) ¾ and ¼
8. The speed of 4 pole 3 phase synchronous motor supplied from 50 Hz supply is

a) 1000rpm   b) 1500rpm   c) 2000rpm   d) 3000rpm

9. A single phase induction motor is inherently

a) self-starting   b) not self-starting   c) large starting torque   d) infinite starting current

10. If a dc series motor is started without any load

a) dangerously high current will be drawn   b) motor will run at dangerously high speed  
c) starting current will be zero   c) starting torque will be zero

11. If a dc shunt motor is running at a steady speed and suddenly load is thrown off the motor

a) motor will stop   b) motor will run at dangerously high speed   c) no significant change in speed

d) current will increase.

12. A 3 phase induction motor

a) has zero starting torque   b) is self-starting   c) has infinite starting speed d) has zero starting current.

13. A Synchronous motor has

a) single ac excitation   b) single ac excitation   c) both ac and dc excitation d) no need for supply

14. Which of the following is a constant speed motor

a) series motor   b) compound motor   c) induction motor   d) synchronous motor.

15. In a 3-phase induction motor where  $N_s$  = synchronous speed,  $N$  = motor speed, the slip is defined

a)  $(N_s - N)/N_s$    b)  $(N - N_s)/N$    c)  $(N_s - N)/N$    d)  $(N - N_s)/N_s$

Q16. a 4-pole lap wound dc shunt motor has 256 conductors on its periphery. If the emf is 200v and the speed is 1000rpm, find the flux.

a) 0.0486 wb   b) 0.486wb   c) 4.86 wb   d) 48.6 wb

17. The step size of a m stack, n teeth per stack multi-stack stepper motor is

a)  $360/mn$    b)  $mn/360$    c)  $360 m/n$    d)  $180/mn$

18. A 6 pole, 50 Hz , 3 phase induction motor runs at 990 rpm, the slip is

a) 0.01    b) 0.02    c) 0.05    d) 10

19. why are starters required for dc motors

- a) back emf is zero
- b) they are not self starting
- c) To restrict armature current as there is no back emf at starting
- d) They have large starting torque.

20. A stepper motor with 8 teeth on stator and 6 teeth on rotor which step angle will be able to achieve

a) 15 degree    b) 50 degree    c) 51 degree    d) 20 degree

21. A 3-point starter is used for

- a) dc shunt motor
- b) dc series motor
- c) 3 phase induction motor
- d) single phase motor

22. The starting resistance of dc shunt motor is

- a) 5 k ohm
- b) infinite
- c) negligible
- d) 2.2kohm

23. What will happen if DC motor is used without starter?

- a) Heavy sparking at brushes
- b) It'll start smoothly
- c) Will not start at all
- d) Depends on load

24. . Four-point starter is used when \_\_\_\_\_

- a) Motor field current is varied in narrow range
- b) Motor speed is varied in small range
- c) Motor field current is varied over wide range
- d) Can be used anywhere

25. Iron losses in a machine are dependent upon

- a) speed
- b) load
- c) current
- d) voltage