



**Department of Electrical and Electronics Engineering**

**Subject & Subject Code: EE8005 & Special Electrical Machines**

**UNIT II- MCQ Bank**

**SWITCHED RELUCTANCE MOTORS**

1. What is the angle between stator direct axis and quadrature axis?

- a) **90°**
- b) 0°
- c) 45°
- d) 60°

Answer: a

2. Space angle,  $\theta_r$  is measured between stator d-axis and \_\_\_\_\_

- a) quadrature axis
- b) direct d-axis
- c) **long rotor axis**
- d) none of the mentioned

Answer: c

3. The reluctance offered to the stator flux by two very large air gaps in series with high permeability iron, in reluctance machine is maximum, when the space angle  $\theta_r =$  \_\_\_\_\_

- a) 0°
- b) 45°
- c) **90°**
- d) 180°

Answer: c

4. The reluctance offered to the stator flux by two small air gaps in series with high permeability iron, in reluctance machine is minimum, when the space angle  $\theta_r =$  \_\_\_\_\_
- a)  $0^\circ$
  - b)  $45^\circ$
  - c)  $90^\circ$
  - d)  $270^\circ$

Answer: a

5. The variation of reluctance  $R_l$  with space angle  $\theta_r$  depends on the shape of \_\_\_\_\_
- a) stator poles
  - b) rotor poles
  - c) stator or rotor poles
  - d) both stator and rotor poles**

Answer: d

6. Reluctance motor can produce torque at \_\_\_\_\_
- a) any speed less than synchronous speed
  - b) synchronous speed only**
  - c) any speed greater than synchronous speed
  - d) all of the mentioned

Answer: b

7. For a reluctance motor, the maximum average torque occurs when  $\delta =$  \_\_\_\_\_
- a)  $45^\circ$**
  - b)  $90^\circ$
  - c)  $0^\circ$
  - d)  $180^\circ$

Answer: a

8. For a given reluctance motor,  $R_{ld}$  and  $R_{lq}$  are \_\_\_\_\_
- a) constant**
  - b) varying

- c) zero
- d) all of the mentioned

Answer: a

9. The single phase reluctance machine acts as a generator when angle  $\delta$  is \_\_\_\_\_

- a) positive
- b) negative**
- c) zero
- d) any of the mentioned

Answer: b

10. Single phase reluctance motors are extensively used in \_\_\_\_\_

- a) grinder applications
- b) driving electric clocks and other timing devices**
- c) welding applications
- d) lifts/ elevators

Answer: b

11. If the salient pole rotor in a single phase reluctance motor is replaced by a cylindrical rotor, then

Which of the following statements are true?

- (i) reluctance offered to stator flux remains constant for all rotor positions
- (ii) no reluctance torque will be developed
- (iii) reluctance torque will be developed
- (iv) reluctance offered to stator flux changes for all rotor positions

**a) (i), (ii)**

b) (ii), (iii)

c) (iii), (iv)

d) (i), (iv)

Answer: a

12. Which of the following are applications of singly excited magnetic systems?

- a) electromagnets, relays
- b) moving-iron instruments
- c) reluctance motors
- d) all of the mentioned**

Answer: d

13. For which of the applications a reluctance motor is preferred

- A. Electric shavers
- B. Refrigerators
- C. Singnalling and timing devices**
- D. Lifts and hoists

Answer: c

14. A reluctance motor

- A. Is self-starting
- B. Is constant speed motor
- C. Needs no D.C. excitation
- D. All of the above**

Answer: d

15. Reluctance motors are

- A. Singly excited**
- B. Doubly excited
- C. Either of the above

D. None of the above

Answer: a

16. Which of the following motors is generally used for electric shavers

**A. Universal motor**

B. Shaded-pole motor

C. Reluctance motor

D. Hysteresis motor

Answer: a

17. Which of the following motors is generally used in toys

**A. Reluctance motor**

B. Hysteresis motor

C. Shaded-pole motor

D. Two-value capacitor motor

Answer: a

18. A reluctance motor

A. Is provided with slip rings

B. Requires starting gear

C. Has high cost

**D. Is compact**

Answer: d

19. Rotor of a motor is usually supported on \_\_\_\_\_ bearings.

**A. Ball or roller**

B. Needle

C. Bush

D. Thrust

Answer: a

20. When the load is above \_\_\_\_\_ a synchronous motor is found to be more economical.

A. 2 kW

B. 20 kW

C. 50 kW

**D. 100 kW**

Answer: D

21. In a two phase cylindrical rotor synchronous machine, the self inductances  $L_\alpha$ ,  $L_\beta$  for phases  $\alpha, \beta$  respectively are \_\_\_\_\_

**a) constant and equal**

b) constant and unequal

c) varying and equal

d) varying and unequal

Answer: a

22. In a two phase cylindrical rotor synchronous machine, the mutual inductance  $M_{\alpha\beta}$  between  $\alpha$  phase and  $\beta$  phase winding is \_\_\_\_\_

a)  $M_{\max}$

**b) 0**

- c)  $M_{\min}$
- d) any of the mentioned

Answer: b

23. A capacitor selected for capacitor-run motor should be rated for

- A.r.m.s. voltage
- B.Average voltage
- C.Peak voltage**
- D.None of the above

Answer: c

24. In a capacitor start and run motors the function of the running capacitor in series with the auxiliary winding is to

- A.Improve power factor**
- B.Increase overload capacity
- C.Reduce fluctuations in torque
- D.To improve torque

Answer: a

25. In a two value capacitor motor, the capacitor used for running purpose is

- A.Air capacitor
- B.Paper spaced oil-filled type**
- C.Ceramic type
- D.A.C. electrolytic type

Answer: b