A   Reg. No. :

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. In PMBLDC motor Field Magnet on the   CO1- R

    (a) Stator   (b) Rotor   (c) both (a) and b)   (d) None of the above

2. The speed of permanent magnet BLDC motor cannot be controlled by   CO1- U

    (a) Rheostatic control method   (b) Flux control method

    (c) Electronic circuits   (d) None of the above

3. Pmsm working principle is   CO2-R

    (a) Amphere circuital law   (b) ohms law   (c) magnetic locking   (d) lenz law

4. EMF equation of the PMSM similar to   CO2-U

    (a) Transformer   (b)dc machine   (c) stepper motor   (d) None of the above

5. What is the angle between stator direct axis and quadrature axis?   CO3-R

    (a) 90°   (b)0°   (c) 45°   (d) 60°

6. Types of control techniques used in SRM   CO3- R

    (a) Voltage control   (b)Frequency control   (c)v/f control   (d) Hysteresis control

7. Operation of stepper motor at high speed is referred to as   CO4- U

    (a) Fast forward   (b)Slewing   (c)Inching   (d) Jogging

8. Torque constant of a stepper motor is also called as   CO4- R

    (a) Détente torque   (b)Torque sensitivity   (c)Pull in torque   (d) Pull out torque

9. Radial airgap motor has ------------   CO5- R

    (a) axial laminations   (b)radial laminations   (c)both laminations   (d) none of the above

10. A linear Induction Motor may be_____.   CO5- R

    (a) Single sided / Double sided   (b)Primary / secondary

    (c)none of the above   (d) both a &b

<div align="center">PART – B (5 x 2= 10 Marks)</div>

11. List out the different classifications of BLPM DC motor   CO1- U

12. What are the assumptions made in the derivation of EMF equation for PMSM?   CO2- R

13. Illustrate the different modes of operation of switched reluctance motor.   CO3 -U

14. Define step angle.   CO4 -U

15. List the applications of synchronous reluctance motors.   CO5 -U

<div align="center">PART – C (5 x 16= 80 Marks)</div>

16. (a) Explain the Construction & principle of operation of PMBLDC motor.   CO1- U   (16)

<div align="center">Or</div>

    (b) Sketch the structure of power controller for PMBLDC motor &   CO1- U   (16)
         Explain the functions of each block

17. (a) Draw and explain the phasor diagram of PMSM   CO2- U   (16)
<div align="center">Or</div>
    (b) Discuss about various power controller used in PMSM motor   CO2- Ana   (16)

18. (a) Draw the cross sectional view of switched reluctance motor and   CO3- Ana   (16)
         explain the principle of Operation
<div align="center">Or</div>
    (b) Describe the following: CO3- U   (16)
         (i) Role of microprocessors in control of switched reluctance motor
         (ii) Sensorless operation

19. (a) Describe in detail the construction and working of variable reluctance   CO4- R   (16)
         stepper motor.
<div align="center">Or</div>
    (b) Draw and explain drive circuits and their performance characteristics   CO4- U   (16)
         for stepper motor

<div align="center">2</div>

20. (a) Describe the constructional features and operation of variable CO5- U (16)
    reluctance synchronous reluctance motor

                                    Or

    (b) Describe briefly about the repulsion motor.   CO5- R (16)

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