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Reg. No. :

Question Paper Code: 53T01

M.E. DEGREE EXAMINATION, NOV 2019

Third Semester

Power Electronics and Drives

15PPE301 – SPECIAL ELECTRICAL MACHINES AND CONTROLLERS

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Explain the construction and working principle of PMBLDC motor.   CO1- U   (20)

Or

    (b) Discuss the use of Hall sensors for position sensing in PMBLDC motor.   CO1- U   (20)

2. (a) With necessary phasor diagram and circle diagram, describe torque speed characteristics of PMSM.   CO2-U   (20)

Or

    (b) With a neat sketch explain the constructional features and principle of operation of synchronous reluctance motor.   CO2-U   (20)

3. (a) Explain in detail the control circuits used in switched reluctance motor.   CO3-U   (20)

Or

    (b) Draw and explain four converter topologies for three phase Switched Reluctance. Write the merits and demerits of each.   CO3-U   (20)

4. (a) Explain the static and dynamic characteristics of a VR stepper motor with various specifications in them.   CO4 -U   (20)

Or

    (b) Explain open loop and closed loop control of stepper motor.   CO4 -U   (20)

5. (a) Describe the principle of operation of AC series motor and mention its applications. CO5-U (20)

Or

(b) Draw and explain any one of the linear motor. CO5-U (20)

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