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Question Paper Code: 91T02

M.E. DEGREE EXAMINATION, NOV 2019

First Semester

Power Electronics and Drives

19PPE102– MODELING AND ANALYSIS OF ELECTRICAL MACHINES

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Develop the Voltage and torque equations of DC machine. CO1- U (20)
Or
(b) Explain the basic concepts of Rotating machine. CO1- U (20)
2. (a) Derive the induction machine model in arbitrarily rotating reference frame. CO2- U (20)
Or
(b) Write short notes on Reference-frame theory , Commonly used reference frames & Transformation between reference frames. CO2- U (20)
3. (a) Explain the dynamic performance for 3 phase fault in synchronous machine. CO3- U (20)
Or
(b) Explain Generalized theory of rotating electrical machine and Kron's primitive machine. CO3- U (20)
4. (a) Explain the Frequency response test of synchronous machines. CO4- U (20)
Or
(b) Draw the equivalent circuits of a 2-phase unsymmetrical induction machine using voltage equations in stationary reference-frame variables. CO4- U (20)

5. (a) Derive Voltage and torque equation of surface mount permanent magnet machine in stator reference frame. CO5- U (20)

Or

- (b) Explain the construction and operating principle of surface & interior permanent magnet machines CO5- U (20)