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FACULTY OF ENGINEERING & TECHNOLOGY

M.E.(Electrical Power System) Year Examination - June– 2015

Electrical Machine Analysis and Modeling

(Revised)

[Time: Three *Hours*] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

i) Attempt any two questions from each section.

ii) Assume suitable data wherever necessary.

iii) A figure to the right indicates full marks.

SECTION-A

Q.1 a) Explain the principle of electromechanical energy conversion and also explain the energy balance equation. 10

b) By considering 2 pole, 3 ph, y- connected synchronous machine discuss the winding configuration and air gap mmf. 10

Q.2 a) Derive voltage and torque equation of separately excited D.C machines 10

b) Explain the dynamic performance of permanent magnet D.C. motor during sudden change in load torque. 10

Q.3 a) Explain the equation of transformation. 10

b) Apply Q do transformation to the inductive element. 10

SECTION –B

Q.4 a) Derive the torque equation in machine variables of symmentrical induction machine. 10

b) Explain the dynamic performance of symmetrical induction motor during sudden change in load torque. 10

Q.5 a) Derive the voltage equation in machine variables of tan pole 3-ph. Salient synchronous machine. 10

b) Explain the rotor angle and angle between rotor's in synchronous machine. 10

Q.6 a) Explain hydraulic terbines and their governer system. 10

b) Explain the basic elements of excitation system. 10