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Roll No.

C101

B. Tech. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

(EEE)

EE212B

ELECTROMECHANICAL ENERGY
CONVERSION

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

(2-01/17) M-C101

P.T.O.

Unit I

1. Describe the AC operation of Magnetic Circuit. Further describe the Hysteresis and Eddy current losses in Machines.
2. An iron ring of mean circumferential length of 50 cm with an air gap of 1 mm and a uniform winding of 100 turns. When a current of 1.5 A flows through the coil, find the flux density. The relative permeability of iron is 300. Neglect fringing.

Unit II

3. Define the efficiency of a transformer and find the condition for obtaining maximum efficiency.
4. Compare the VA rating of a two winding transformer when connected as An auto-transformer.

Unit III

5. Derive the equation of back e.m.f. for a d.c. motor.

6. Draw a neat sketch of a d.c. generator. State the functions of each part. What do you mean by critical resistance ?

Unit IV

7. Describe with the neat sketches the construction of a three-phase wound induction motor. Give a brief introduction of speed control of induction motor.
8. A 4 pole, 3-phase, 50 Hz, star-connected alternator has 60 slots, with 2 conductors per slot and having armature winding of the two layer type. Coils are short pitched in such a way that if one coil side lies in slot number 1, the other lies in slot number 13. Determine the useful flux per pole required to generate a line voltage of 6000V.