

Roll No.

OLE-24031

B. Tech. 3rd Semester (ECE) Examination – April, 2021

ELECTRO-MECHANICAL ENERGY CONVERSION

Paper : EE-205-F

Time : Three Hours]

[Maximum Marks : 100

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

Note : Question No. 1 is *compulsory*. Attempt *one* question from each Section.

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| 1. (a) Explain B-H curve. | 5 |
| (b) Discuss magnetic leakage and fringing. | 5 |
| (c) Explain the term synchronous speed. | 5 |
| (d) What is distribution factor ? Also define pitch factor. | 5 |

SECTION – A

2. Explain hysteresis and Eddy current losses. Prove that hysteresis loss magnetic material is equal to the area of hysteresis loop. 20

3. (a) State and explain the law of electromagnetic induction and define static and dynamic emf. 10
(b) Classify the magnetic materials and the basic of their magnetic properties. 10

SECTION – B

4. Explain various speed control methods of DC motors. 20

5. Discuss construction of DC generator and explain the external characteristics curve for DC Compound generator. 20

SECTION – C

6. Explain construction, equivalent circuit and phasor diagram of synchronous motor. 20

7. (a) Discuss various starting methods of synchronous motor. 10
- (b) Explain V curves for synchronous motor. 10

SECTION – D

8. (a) Explain torque-slip curve for induction motor. 10
- (b) Explain Universal motor. 10
9. (a) Explain open circuit and short circuit test of transformer. 10
- (b) Draw phasor diagram of transformer with resistive Inductive and Capacitive load. 10
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