

Roll No.

OLE-24026

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

ELECTRICAL MACHINES - I

Paper : EE-207-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 : (i) Question No. 1 is *compulsory*.

(ii) Attempt *four* more questions from four Sections A, B, C & D by selecting at least *one* question from each Section.

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| 1. (a) State and explain Faraday's law of EMI. | 5 |
| (b) What do you mean by inrush current ? | 5 |
| (c) Derive the e. m. f. equation of D. C. Generator. | 5 |
| (d) What do you mean by plugging ? | 5 |

SECTION – A

2. Draw and explain phasor diagram of practical Transformer at capacitive load. 20

OR

3. What do you mean by per unit system. Derive the equation of voltage regulation of single phase transformer at Inductive load. 20

SECTION – B

4. Write down the conditions for parallel operation of single phase transformers. Draw and explain the connections of 3-phase Transformers. 20

OR

5. What is an auto transformer ? Derive the equation for saving in copper by using auto transformer in comparisons to save rating of ordinary Transformer. 20

SECTION – C

6. What is armature reaction in D. C. Generator ? Explain the effect of armature reaction on Terminal voltage of D. C. Generator in detail. 20

OR

7. Draw and explain the load characteristics of compound generator in detail. 20

SECTION – D

8. Derive and explain the mathematical equation of Torque of a D. C. motor. 20

OR

9. Explain the starting and speed control of D.C. motors in detail. 20
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