Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EE/EX-4002-CBGS

B.E. IV Semester

Examination, June 2020

Choice Based Grading System (CBGS)

Electrical Machine - I

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Define a Transformer. Explain the principle of operation of a Transformer.
   b) Derive an expression for induced emf in the transformer winding.

2. a) Draw the exact equivalent circuit of a transformer and describe the various parameters involved in it.
   b) Describe briefly the various losses in a transformer.

3. a) What are the conditions for parallel operation of a transformer.
   b) In a 25 kVA 2000/200V transformer, the iron and copper losses are 350W and 400W respectively. Determine the values of iron and copper losses which will give maximum efficiency and also find the value of maximum efficiency.

4. a) Define an auto transformer. State its merits and demerits over a two winding transformer.
   b) What are the advantages of parallel operation of transformers?

5. a) Explain with the help of connection and phasor diagrams how a Scott connection is used to obtain two phase supply from three phase supply.
   b) A three phase step down transformer is connected to 6600 on primary side. The ratio of turns per phase is 12 and line current drawn from mains is 20A. Find the secondary line voltage and line current if the transformer is
      i) YY
      ii) YA

6. a) What are the advantages and disadvantages of a squirrel-cage motor over a wound rotor motor?
   b) Draw and explain the torque characteristic of a three phase induction motor.

7. a) Explain the working procedure of deep bar rotor and double cage induction motor.
   b) Explain the phenomena of a crawling and cogging in a three phase induction motor.

8. a) Explain why single phase induction motors do not have self starting torque.
   b) What are the different methods of starting of a single phase induction motor?

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