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Roll No

EE/EX-4002-CBGS

B.E. IV Semester

Examination, December 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) Describe the principle and working of a single phase transformer and draw the no load phasor diagram of an ideal transformer.
b) Explain with neat circuit diagrams the open circuit and short circuit test on a single phase transformer.
2. a) Derive the condition for maximum efficiency of a transformer at a given power factor.
b) A 100 KVA, 50 Hz, 440/11000 V single phase transformer has an efficiency of 98.5% when supplying full load currents at 0.8 pf lagging and an efficiency of 99% when supplying half full load current at unity power factor. Find the core loss and copper losses corresponding to full load current. At what value of load current the maximum efficiency be attained?
3. a) Explain the no load and block rotor test of induction motor.
b) Explain the equivalent circuit of three phase induction motor. What the information we got from equivalent circuit diagram?

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4. a) Explain the speed control methods of three phase Induction motor.
b) Explain the double cage and deep bar induction motor.
5. a) Explain the double revolving field theory of single phase induction motor.
b) Explain various types of single phase induction motors.
6. a) What is the impact of harmonics in the performance of the 3 phase induction motor?
b) Draw and explain the Phasor diagram for inductive load of transformer.
7. a) Why Single phase induction motor is not self starting?
List the starting methods single phase induction motor.
b) Give the construction and working principle of single phase a.c. Series motors.
8. Write short notes (Any two)
 - a) Cogging and Crawling
 - b) Servo motors
 - c) LIM
 - d) Conservator and Breather

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