

Roll No. ....

Total Pages : 2

BT-8/M-20

38032

SPECIAL ELECTRICAL MACHINE

Paper-EE-408E

Time Allowed : 3 Hours]

[Maximum Marks : 100

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

UNIT-I

1. Explain the constructional features, principle of operation and phasor diagram of Single-phase induction motor.
2. Discuss the construction and working of Repulsion motor along with the phasor diagram.

UNIT-II

3. (a) Explain the terms 'transverse edge effect' and 'end effect' related to linear Induction motors.  
(b) A single-sided linear induction motor has 48 poles and its pole pitch is 50 cm. The motor is used for propelling an electric vehicle. Determine the linear synchronous velocity and the vehicle

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speed in km per hour, if the frequency is 50 Hz and the slip is 0.25.

4. Explain various high performance energy efficient machines.

### UNIT-III

5. Explain the construction, equivalent circuit and phasor diagram of an Induction generator.
6. Discuss in detail along with their applications in Wind power generation :
  - (a) Self-excited induction generators.
  - (b) Double field induction generators.

### UNIT-IV

7. Explain the principle of operation of 3-phase synchronous motor with neat diagrams. Also, explain why it will not run at other than synchronous speed.
8. Explain in detail along with their applications :
  - (a) Switched reluctance motors.
  - (b) Shaded poles motors.