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C09-EE-603**3764**

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2018
DEEE—SIXTH SEMESTER EXAMINATION
AC MACHINES—II**

*Time : 3 hours]**[Total Marks : 80***PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the V curves and inverted V curves of a synchronous motor at full load.
2. State how hunting is prevented in a synchronous motor.
3. State the main parts of a synchronous motor.
4. The rotor speed of a 6-pole, 50-Hz induction motor is 960 rpm. Calculate the percentage slip.
5. Distinguish between induction motor and transformer in any three aspects.
6. What is the necessity of starters in case of three-phase induction motors?

7. Draw the torque-speed curve of a single-phase induction motor with double revolving theory.
8. State any three applications of 1-phase induction motor.
9. State the method of reversal of rotation of capacitor start motor.
10. State any three applications of AC series motor.

PART—B

5×10=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11. Explain the starting of synchronous motor by damper winding.
12. A 2000 V, 3-phase star connected synchronous motor has effective resistance and synchronous reactance per phase of 0.2 and 22 respectively. The input to the motor at normal voltage is 8000 kW and the induced e.m.f at that time is 2500 V.

Calculate (a) the line current (b) the power factor.
13. Describe the construction of squirrel cage and slip-ring rotors in inductor motors with diagrams.
14. (a) Define the following : (i) slip (ii) slip speed
(b) The power input to a motor is 65 kW. The total stator loss is 1.5 kW. Find the rotor copper loss per phase if the motor is running with a slip of 4./
15. Explain the construction of a circle diagram of an induction motor.
16. (a) Derive the relation between rotor full-load torque and maximum torque.

- (b) Calculate the torque exerted by 6-pole, 50 Hz, 3-phase induction motor operating with a 5% slip which develops a maximum torque of 180 kg-m at a speed of 820 rpm. The resistance per phase of the rotor is 0.5 .
- 17.** Explain the construction and working of shaded-pole induction motor with neat diagram.
- 18.** Explain the construction and working principle of Stepper motor with neat diagram.
