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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2017

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 why the synchronous motor is not self-starting machine.

3. State the main parts of synchronous motor.

4. Draw the vector diagram of an induction motor.

5. State the factors which affect the speed control of induction motor.

6. State the working principle of induction motor.

7. State any three applications of 1-ph induction motor.

8. State any three applications of capacitor-start, capacitor-run induction motor.

9. Explain how the rotation is obtained in shaded pole 1 induction motor.

10. State any three applications of universal motor.

PART—B 10×5=50

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

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

(3) Answers should be comprehensive and the criterion 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 volt, 3 star-connected synchronous motor has of effective resistance and synchronous reactance of 0 2 and 22 respectively, the input is 800 kW at normal voltage and the induced e.m.f. is 2500 V. Calculate the line current and power factor.

13. Describe the no-load test and blocked rotor test on an induction motor.

14. Explain the operation of rotor resistance starter with diagram.

15. Describe the construction of squirrel-cage and slip-ring rotors in induction motors with diagrams.

16. *(a)* Explain, with the help of power flow diagram, how electrical input is converted into mechanical power output in an induction motor.

(b) The rotor resistance and standstill reactance per phase at a 3-phase slip-ring induction motor are 0 02 and 0 1 respectively. What should be the value of the external resistance per phase to be inserted in the rotor circuit to give maximum torque at starting?

17. Explain resistance start split-phase single-phase induction motor operation with neat diagram.

18. Explain the construction and working principle of permanent-magnet brushless motor.

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