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BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
A.C. MACHINES-II
FIFTH SEMESTER EXAMINATION

Time: 3 Hours   **Total Marks: 80**

PART - A   (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Why synchronous motor runs only at synchronous speed

2. Write the phenomenon of hunting.

3. The rotor speed of a 6-pole, 50 Hz induction motor is 960 rpm. Calculate the % slip

4. Compare synchronous motor with induction motor in any three aspects

5. List the necessary modifications to be done in a d.c. series motor so that it can work on a.c.supply satisfactorily

6. Write short notes on a.c. series motor

7. State any three electrical characteristics in selecting a motor for a drive

8. List the types of loads based on time and duty

9. What is rheostatic braking

10. State any three advantages of electrical braking over mechanical braking

PART - B   (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. A 3-phase synchronous motor absorbing 50 KW is connected in parallel with a factory load of 200 KW having a lagging p.f. of 0.75. If the combined load has a p.f. of 0.95 lagging, what is the KVA rating of synchronous motor. Also, determine the p.f. at which synchronous motor is working

12. Explain the star/delta starter of a 3-phase induction motor with the help of neat sketch

13. Explain the speed control method of 3-phase induction motor (i) by changing the supply frequency and (ii) by cascade connection methods with neat sketches

14A. Derive an expression for back emf and load angle in synchronous Motor for lagging p.f

B. Compare slip-ring and squirrel cage induction motors in any five aspects

15. Explain the construction and working principle of stepper motor with a neat diagram

16. Explain the working principle of a single phase induction motor by double field revolving theory

17. A motor has following duty cycle. 100HP for 10 minutes, No-load for 5 minutes, 60HP for 8 minutes, No-load for 4 minutes which is repeated indefinitely. Determine a suitable size of a continuously rated motor

18. A 440V, 40KW, 600rpm dc shunt motor has a full load efficiency of 90%. The field resistance is 220 ohms and the armature resistance is 0.1 ohms. Find the speed under regenerative braking

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