C14-EE-502

# 4634

## BOARD DIPLOMA EXAMINATION, (C-14)
## OCTOBER/NOVEMBER-2018
## DEE-FIFTH SEMESTER EXAMINATION

AC MACHINES -II

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

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**PART-A**

3X10=30

***Instructions :*** 1. Answer **All** questions.
2. Each question carries THREE marks
3. Answer should be brief and straight to the point

1. List and 3 advantages of Synchronous Motor.
2. Draw typical V and Inverted V curves of synchronous motor on No load and full Load.
3. Why the rotor slots of a three phase induction motor are skewed?
4. Define the following (i) Slip (ii) Slip speed.
5. Differentiate between a Squirrel cage and a slip ring motor in any 3 aspects.
6. Why is a single phase induction motor not self-starting?
7. List out the applications of Split phase induction motor.
8. State the method of reversal of rotation of shaded pole inductions motor.
9. What are the modifications necessary in a DC series motor so that it may work satisfactorily on AC.
10. State various methods of speed control of Universal motor.

## PART-B

10X5=50

***Instructions :***

1. Answer any **five** questions.
2. Each question carries **ten** marks.
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. A 2000 V three phase star connected synchronous motor has effective armature resistance and synchronous reactance of 0.2Ω and 2.2Ω per phase respectively. The input is 800 kw at rated voltage. The induced emf is 2500 V. find the line current and power factor.
12. Explain the generation of rotating magnetic field in a three phase system.
13. A 4 pole 50 Hz 7.46 Kw motor has at rated voltage and frequency a starting torque of 160 percent and a maximum torque of 200 percent of full load torque. Determine (i) Full load speed (ii) Speed at maximum torque.
14. Explain with neat sketch the following speed control methods of three phase induction motor (i) By changing the stator poles (ii) By rotor emf injection method.
15. Explain the working operation of star delta starter of a three phase induction motor with a legible sketch.
16. A 415 v 29.84 KW, 50Hz delta connected motor gave the following test data.
    No load test: 415 v , 21A, 1250 watts
    Blocked Rotor test: 100v, 45A, 2730 watts.
    Construct the circle diagram and determine (i) The line current and power factor for rated output. (ii) The maximum torque. Assume stator and rotor copper losses are equal at stand still.
17. Explain the working principle of single phase induction motor by double field revolving theory.
18. Explain the construction and working principle of universal motor with legible sketch.

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