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C09-EE-603

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BOARD DIPLOMA EXAMINATION, (C-09)
OCTOBER/NOVEMBER-2018
DEEE-SIXTH SEMESTER EXAMINATION

A.C. MACHINES-II

Time : 3 Hours] [Total Marks: 80

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 and shall not exceed five simple sentences.

1. State why the Synchronous motor is not a self-starting machine.
2. Draw the vector diagrams of Over-excited and under excited Synchronous motor and name all the component vector and angles on it.
3. Explain the phenomenon of HUNTING.
4. A 12 pole, 50 Hz, 3-phase Induction motor runs at 485 r.p.m. what will be frequency of the rotor current.
5. Define the following (a) Slip (b) Slip-Speed.
6. Draw the torque-slip curves of induction motor for different values of rotor resistance.
7. List any 3 applications of shaded pole motors.
8. State the function of centrifugal switch in single phase motor.
9. State any three applications of Capacitor start Capacitor run induction motor.
10. Mention the problems that arise when a D.C. series motor is connected across AC supply.

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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. Explain the construction of a Synchronous motor with a legible sketch.
12. A Synchronous motor absorbing 60kW is connected in parallel with a factory load of 240KW having a lagging p.f 0.8. if the combined load has power factor of 0.9 lag. What is the leading KVAR supplied by the motor and at what power factor is it working.
13. A 3-phase induction motor is wound for 4 poles and is supplied from 50 Hz system, Calculate (i) the synchronous speed (ii) the speed of the motor when slip is 4% and (iii) the rotor current frequency when the motor runs at 600 rpm.
14. Explain the operation of Auto transformer starter with a legible sketch.
15. Explain with legible sketch the speed control methods of 3-ϕ induction Motor.
    i. By charging the supply frequency
    ii. By Cascade connection.
16. (a) Derive the relation between rotor starting torque and maximum torque of induction motor.
    (b) State the effect of supply voltage on torque and speed of a induction motor
17. Explain the working principle of a single-phase induction motor by double revolving field theory.
18. Explain the construction and working principle of Universal motor with legible sketch.

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