A Reg. No. : | | | | | | | | | | |

Question Paper Code: 54302

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Fourth Semester

Electrical and Electronics Engineering

15UEE402- AC MACHINES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. The slip speed of an induction motor depends upon: CO1- R

   (a) Armature current (b) Supply voltage (c) Mechanical load (d) Eddy currents

2. The rotor winding connection of three phase wound rotor is generally CO1- R

   (a) Star (b) Delta (c) Star-Delta (d) Delta-Star

3. Reduced voltage can be applied across the stator circuit by CO2- R

   (a) Using an autotransformer

   (b) Connecting resistor in series with stator winding

   (c) Connecting inductor in series with stator winding

   (d) All of these

4. In pole changing method of speed control, if the number of poles increased, motor speed will CO2 -R

   (a) Increase (b) Decrease (c) No change (d) Synchronous speed

5. The speed at which a 6 pole alternator should be driven to generate 50 Hz is CO3 -R

   (a) 1000 rpm (b) 500 rpm (c) 1500 rpm (d) 750 rpm

6. When speed of an alternator is changed from 3600rpm to 1800rpm the generated emf/phase will become CO3- R

   (a) one half (b) twice

   (c) four times (d) one fourth.

7. In a synchronous motor, damper winding is provided in order to CO4- R

(a) Stop the rotor (b) Reduce rotor oscillations

(c) Increase rotor oscillations (d) Increase current

8. Synchronous Condensor is ---------- CO4 -R

(a) Over excited Synchronous motor (b) Normal excited Synchronous motor

(c) Under excited Synchronous motor (d) Static capacitor bank

9. The capacitor in ceiling fan is connected in series with---------- CO5- R

(a) Running winding (b) Compensating winding

(c) Starting winding (d) Rotor winding

10. The single phase induction motor is CO5 -R

(a) Self starting (b) High power factor motor

(c) High starting torque motor (d) Not self starting

PART – B (5 x 2= 10Marks)

11. What is slip of an induction motor? State the advantages of skewing? CO1- R

12. Why the starter is necessary to start a 3-phase Induction motor? CO2- R

13. Compare salient pole rotor & smooth cylindrical rotor.. CO3- R

14. Why the stator core is laminated?. CO4 -R

15. Define slip of induction motor. CO5 -R

PART – C (5 x 16= 80Marks)

16. (a) Draw the equivalent circuit and derive expressions for maximum torque and power of a three phase induction motor. CO1 -App (16)

Or

(b) Sketch the Torque – Slip characteristics of three phase Induction motor. Analyze the characteristics for various values of rotor resistance & Explain CO1- App (16)

17. (a) Discuss various starting method of 3-phase Induction motor CO2 -App (16)

Or

(b) Describe the slip power recovery scheme for speed control of slip ring induction motor. CO2- Ana (16)

18. (a) Explain ZPF method of determining the regulation of an alternator. CO3- Ana (16)

Or

	(b)	Distinguish the procedure for POTIER method for calculation of voltage regulation	CO3- Ana	(16)
19.	(a)	Enumerate the reasons for synchronous motor is not self starting. Summarize the starting methods of Synchronous Motor. Explain any one method in detail	CO4- U	(16)

Or

	(b)	Describe the various methods of starting of synchronous motor	CO4 -Ana	(16)
20.	(a)	Explain the double field revolving theory for operation of single phase induction motor. .	CO5 -U	(16)

Or

	(b)	Describe the working of AC Series motor and Universal motor with necessary diagrams.	CO5 -U	(16)

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