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**Reg. No. :**

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**Question Paper Code: 94301**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Electrical and Electronics Engineering

19UEE401 – Electrical Machines - II

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is the highest possible speed by turbo alternators? CO1- R  
(a) 3000 rpm                      (b) 1500 rpm                      (c) 1000 rpm                      (d) 4000 rpm
2. In alternator, the rotary part is CO1- U  
(a) armature                      (b) Core                      (c) magnetic field poles                      (d) none of these
3. For pure resistive load what is the armature reaction? CO2-Ana  
(a) Cross magnetization                      (b) Demagnetization                      (c) Magnetization                      (d) All of the above
4. Which of the following method is accurate to give the voltage regulation? CO2-Ana  
(a) MMF method                      (b) Synchronous Impedance method  
(c) Zero power factor method                      (d) None of the above
5. With the increase in the excitation current of synchronous motor the CO3-Ana  
power factor of the motor will  
(a) Improve                      (b) Decrease                      (c) Remain constant                      (d) Depend on other factors
6. In a synchronous motor, torque or load angle ----- with CO3- Ana  
increase in load  
(a) Increases                      (b) Decreases                      (c) Remains unaffected                      (d) None of the above
7. Slip ring induction motor has CO4- App  
(a) Low starting torque                      (b) Medium starting torque  
(c) High starting torque                      (d) None of these

8. Which type of starter is used in Pumps and Compressors CO5- App  
 (a) DOL Starter (b) Star Delta Starter (c) Auto Transformer Starter (d) All the above
9. In a single phase induction motor, the starting torque developed is proportional to CO5- App  
 (a) supply voltage V (b) Square of V  
 (c) 1/(Square of V) (d) 1/V
10. Which of the following motor used in hair dryers? CO5- App  
 (a) Synchronous motors (b) Shaded pole IM  
 (c) Split phase IM (d) Cage induction motor

PART – B (5 x 2= 10 Marks)

11. What is meant by full pitched winding? CO1- U
12. Compare salient pole rotor & smooth cylindrical rotor CO2- Ana
13. Why Synchronous motor is not self starting? CO3 -Ana
14. Compare the slip ring rotor and cage rotor of an induction motor. CO4 -App
15. Why Single phase induction motor has low power factor? CO5 -App

PART – C (5 x 16= 80Marks)

16. (a) Discuss in detail the armature reaction in alternator. CO1- U (16)  
 Or  
 (b) With the help of neat sketches, explain the various parts of alternators. CO1- U (16)
17. (a) Discuss the EMF method of predetermining the regulation of an alternator CO2- Ana (16)  
 Or  
 (b) List the condition for parallel operation of 3 phase alternator and Explain any one method of parallel operation of Alternators. CO2- Ana (16)
18. (a) Draw and Explain V-curves and inverted V-curves. CO3- U (16)  
 Or  
 (b) Discuss the various starting methods of a synchronous motor. CO3- Ana (16)
19. (a) Draw and Explain Slip Torque characteristics of induction motor with the effect of changing Rotor resistance. CO4- U (16)  
 Or  
 (b) Deduce the Equivalent circuit of Induction motor and Draw circle diagram of Induction Motor by conducting suitable tests CO5- App (16)

20. (a) Explain the working principle of single phase induction motor. Mention its four applications CO6- U (16)

Or

(b) Explain the principle of operation of capacitor run induction motor and capacitor start capacitor run induction motor. CO6- U (16)

