



**B.Tech II Year II Semester Supplementary Examinations, July 2021**  
**ELECTRICAL MACHINES-II**

(EEE)

Maximum Marks: 70

Date: 20.07.2021 Duration: 3 hours

- Note: 1. This question paper contains two parts A and B.  
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.  
3. Part B consists of 5 Units. Answer any one full question from each unit.  
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

- 1 What is the effect of skewing the rotor slots of an induction motor?
- 2 Write the effects of crawling and cogging on the performance of induction motor.
- 3 Explain the principle of working of an Induction motor.
- 4 Draw the Torque-slip characteristics 3- $\phi$  induction motor.
- 5 Discuss the effect of armature reaction in an alternator.
- 6 Why is EMF method called Pessimistic method
- 7 Write the Applications of synchronous motor ?
- 8 Why synchronous motor is not self starting?
- 9 How does a synchronous induction motor run initially? Explain?
- 10 List different types of single phase induction motors. Also mention their applications

Part-B

Answer All the following questions. (5X10M=50Marks)

- 11 Obtain the relation between rotor input, rotor copper losses and rotor output in terms of slip(s). (10M)

OR

- 12 Explain the principle of production of rotating magnetic field in a 3-phase induction motor. (10M)
- 13 a) Explain the procedure for conducting No load test on three phase induction motor. (5M)  
b) Explain the speed control of induction motor using Rotor resistance control. (5M)

OR

- 14 a) Explain the procedure of conducting of blocked rotor test on three phase induction motor. (5M)  
b) Explain the working of Induction generator. (5M)
- 15 Describe the method of finding synchronous impedance of a given alternator. (10M)

OR

- 16 Describe a method to determine direct axis and quadrature axis reactances of a salient pole alternator. (10M)

- 17 a) A 2000V, 50Hz 4-pole 3 phase round rotor synchronous motor runs at 1500rpm has a resistance neglected and synchronous reactance of 3 ohms/ph. The excitation is constant to an open circuit voltage of 2000V. Find the power output of maximum power input, power factor and torque developed for an armature current of 200A. (5M)
- b) Explain the action of synchronous motor under loaded conditions. (5M)

OR

- 18 What is synchronizing power and explain its role in load sharing during parallel operation? (10M)
- 19 a) Discuss in detail about the split phase motor. (5M)
- b) Write a short note on double field revolving theory. (5M)

OR

- 20 a) Discuss the principle and performance of AC Series Motor? (5M)
- b) What type of operating characteristics does an AC series motor give? (5M)