



R20 Regulation

Subject code: 3P4BC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Supplementary Examinations, December 2025

ELECTRICAL MACHINES-II (EEE)

Maximum Marks: 70

Date: 20.12.2025

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)		Marks	CO	BTL
1	Define slip and slip speed.	2M	1	L1
2	Derive torque equation of 3-phase induction motor.	2M	1	L1
3	What is rotor reactance in an induction machine?	2M	2	L1
4	Write the speed control of 3- ϕ IM using change of frequency.	2M	2	L1
5	Why is MMF method called Optimistic method?	2M	3	L1
6	Compare salient pole rotor & smooth cylindrical rotor.	2M	3	L1
7	What is concentrated winding and distributed winding?	2M	4	L1
8	How are 'V' and 'inverted V' curves of synchronous motor are defined?	2M	4	L1
9	How the synchronous motor can be used as synchronous condenser?	2M	5	L1
10	Write the principle of working of single phase shaded pole induction motor.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain the induction motor operation under injection of an e.m.f. into the rotor circuit.	10M	1	L2
OR				
12	What are its advantages and disadvantages of wound rotor type induction motor?	10M	1	L2
13	How is the speed of a 3-phase induction motor controlled by its stator voltage control?	10M	2	L2
OR				
14	Explain in detail about the various starting methods of 3-phase induction motors.	10M	2	L2
15	Derive an expression for finding regulation of salient - pole alternator using two reaction theory. Draw its Phasor diagram.	10M	3	L2
OR				

16	What is meant by synchronization? Explain the way of synchronizing an alternator to the infinite bus bars.	10M	3	L2
17	Explain briefly the principle of operation of 3-phase synchronous motor and mention applications of synchronous motor .	10M	4	L2
	OR			
18	Why synchronous motor is not self starting? Explain various starting methods.	10M	4	L2
19	Explain the construction and operation of variable Reluctance stepper motor.	10M	5	L2
	OR			
20	Explain the construction and operation of Permanent Magnet DC Motor.	10M	5	L2