



R20 Regulation

Subject code:3E5BA

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

**B.Tech V Semester Supplementary Examinations, May 2025**

**ELECTRICAL MACHINE DESIGN**

**(EEE)**

Maximum Marks: 70

Date: 23.06.2025

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 self inductance.	2M	1	L1
2	What is meant by heating.	2M	1	L1
3	What is the cause of noise in transformer.	2M	2	L1
4	Give an expression for the heating time constant of transformer.	2M	2	L1
5	Define slot space factor.	2M	3	L1
6	Define distribution factor or breadth factor.	2M	3	L1
7	Define pitch factor.	2M	4	L1
8	Define distribution factor	2M	4	L1
9	List the CAD Limitations.	2M	5	L1
10	What are the traditional design in CAD.	2M	5	L1

**Part-B**

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain measure consideration in electrical machine design.	10M	1	L2
	OR			
12	Explain the specific electrical and magnetic loading.	10M	1	L2
13	Explain the different cooling methods of a transformer.	10M	2	L2
	OR			
14	Discuss in detail about cooling methods adopted in transformers.	10M	2	L2
15	a) Derive the relation between D and L for best power factor. b) Write short notes on dispersion coefficient.	5M 5M	3	L2
	OR			
16	Write the different types of motors, and their characteristics.	10M	3	L2
17	Write a note on main dimensions for synchronous machine.	10M	4	L2
	OR			
18	Explain the SCR and its effect on machine performance.	10M	4	L2
19	Enplane the synthesis and hybrid methods in CAD	10M	5	L2
	OR			
20	Explain the operation of BLDC motor and applications.	10M	5	L2