R18 Regulation *Subject code:2E5BA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

ELECTRICAL MACHINE DESIGN

(EEE)

Maximum Marks: 70 Date: 10.11.2025 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	What is cogging .	2M	1	L1
2	Define window space factor.	2M	1	L1
3	Define core area factor.	2M	2	L1
4	Explain different types slots used in induction machine	2M	2	L1
5	List the caad software used for designing machines	2M	3	L1
6	List the advantages of transformer.	2M	3	L1
7	What are the disadvantages of low specific magnetic loading.	2M	4	L1
8	What are the desirable characteristics of thermal circuit..	2M	4	L1
9	Explain about overload capacity in induction machine	2M	5	L1
10	Give the expressions for rotor bar current and end ring current	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Briefly explain the limitation of design of electric machine b) list and explain various conducting materials used in electrical machines.	5M 5M	1	L2
	OR			
12	a) Draw and explain costructional details of transformer. b) What is the need for cooling in transformers, explain different types of cooling methods?	5M 5M	1	L2
13	a) Define short circuit ratio.explain the relation between SCR and synchronous impedance b) Compare salient pole and non salient pole alternator	5M 5M	2	L2
	OR			
14	a) Derive the out put equation of synchronous machine b) Explain about crawling.	5M 5M	2	L2
15	Compare 1 phase transformer 3-phase transformer	10M	3	L2
	OR			

16	a) How the choice of specific loadings effects the designing of synchronous machine. b) Explain about synchronous machines briefly.	5M 5M	3	L2
17	Explain the rotar design of synchronous machine.	10M	4	L2
	OR			
18	a) Derive the out put equation of induction machine. b) Compare slipring induction motor and squirrel cage induction motor.	5M 5M	4	L2
19	a) List The advantages and disadvantages of CAAD. b) Draw flowchart for designing of electrical machine.	5M 5M	5	L2
	OR			
20	a) List the advantages of high specific electrical loading. b) Write the disadvantages of high magnetic specific loadings.	5M 5M	5	L2