



R18 Regulation *Subject code: 2P3BD*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, July 2024

**ELECTRICAL MACHINES-I
(EEE)**

Maximum Marks: 70

Date:25.07.2024 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 which carries 10M.
 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)	CO	Bloom Tx
1	Define critical speed.		1	L1
2	Write the principle of operation of DC generator?		1	L1
3	Name the different types of DC generators.		2	L1
4	Define commutation and name the two methods of improving commutation.		2	L1
5	Enumerate the factors on which the speed of a DC motor depends.		3	L1
6	What is the function of No-volt release (NVR) coil provided in a DC motor starter?		3	L1
7	What is meant by turns ratio in transformer?		4	L1
8	Write a short on no-load current of a transformer.		4	L1
9	What is the reason for generation of harmonics in a transformer?		5	L1
10	What are non-linearities in transformer core?		5	L1

Part-B

Answer All the following questions.		(5X10M=50Marks)		
11	Derive the emf equation of DC generator. [10M]		1	L2
OR				
12	Explain about OC Characteristics of DC generator. [10M]		1	L2
13	A 4-pole, 1200 rpm, DC generator with a lap connected armature has 65 slots and 12 conductors per slots. The flux per pole is 0.02wb. Calculate the emf induced in the armature. [10M]		2	L2
OR				
14	Explain armature reaction in a DC machines. [10M]		2	L2
15	Explain the following speed control methods. a) Field control [5M] b) Armature resistance control [5M]		3	L2

	OR		
16	Explain 4-point starter with neat sketch. [10M]	3	L2
17	Explain the constructional details of single-phase transformer. [10M]	4	L2
	OR		
18	Explain the procedure for conducting open-circuit and short circuit tests on a single-phase transformer. [10M]	4	L2
19	Write down the differences between three phase bank transformer and single unit transformer. [10M]	5	L2
	OR		
20	Explain about auto-transformer with a neat sketch and give its applications. [10M]	5	L2