R25 Regulation *Subject code:5ES2AQ*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Regular Examinations, June2026

BASIC ELECTRICAL ENGINEERING

(Common to CSE & CSE(AI&ML))

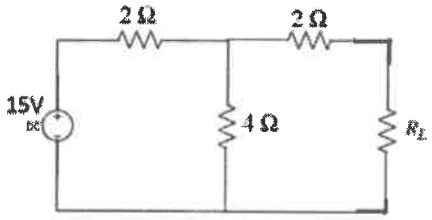
Maximum Marks: 60 Date:22.06.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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 (5X2M=10Marks)		Marks	CO	BTL
1.a	What are the limitations of Ohm's law?	2M	1	L2
b	What is resonance?	2M	2	L2
c	What are the advantages of auto transformer?	2M	3	L2
d	Define Torque and slip?	2M	4	L1
e	Define earthing?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) State and explain Kirchhoff's laws? b) Determine the Equivalent resistance when the resistors are connected in Series & Parallel.	5M 5M	1	L2 L3
	OR			
3	a) State and Explain Maximum Power Transfer theorem with an Example. b) Find load current by using Thevenin's theorem for the following circuit where R_L=4Ω 	5M 5M	1	L2 L3
4	Define average value of an alternating quantity. Derive the expressions for RMS Value, Average value and form factor of an alternating quantity.	10M	2	L2
	OR			
5	a) Explain resonance for series RLC circuit and derive the equation for resonant frequency.	5M	2	L3

	b) Derive the voltage and current relations in three phase balanced circuits for delta connection.	5M		L3
6	a) What are the different types of losses in a transformer? b) Explain the working of single phase transformer?	5M 5M	3	L2 L3
	OR			
7	a. Derive the EMF Equation of Transformer. b. Explain Transformer Under No Load Condition.	5M 5M	3	L3 L2
8	Explain the construction and working principle of DC generator.	10M	4	L2
	OR			
9	a) Explain the construction, working principle of single-phase Induction motor. b) Explain the working principle of synchronous generator.	5M 5M	4	L2
10	a) Explain the Construction and operation of ELCB. b) Explain the types of wires and cables.	5M 5M	5	L2
	OR			
11	a) What are the different types of earthing, and explain with neat sketch. b) Explain the important characteristics of batteries.	5M 5M	5	L2