R18 Regulation *Subject code:2E1AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, January 2026

BASIC ELECTRICAL ENGINEERING

(Common to CE, EEE, ME & IT)

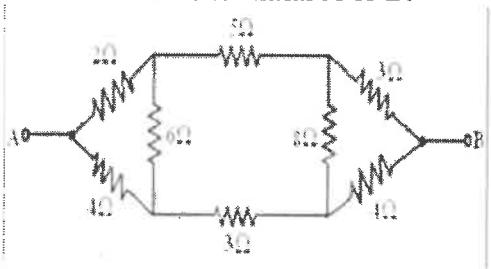
Maximum Marks: 70 Date:19.01.2026 Duration: 3 hours

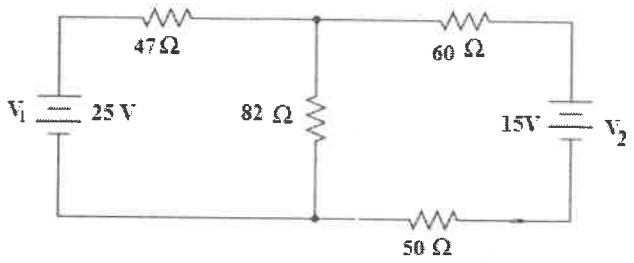
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	Write a short note on different types energy sources.	2M	1	L1
2	Define KCL.	2M	1	L1
3	Define the form factor and peak factor.	2M	2	L1
4	What is mean by phase difference in alternating quantity.	2M	2	L1
5	State the Resiprocity theorem.	2M	3	L1
6	Define Tellegan's theorem.	2M	3	L1
7	List the functions of yoke and armature winding in DC machine.	2M	4	L1
8	Differentiate ideal transformer and practical transformer.	2M	4	L1
9	Mention the importance of earthing and types of earthing.	2M	5	L1
10	List the types of wires and cables.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Derive the expression for star-delta with all equal resistance circuit. b) Find equivalent resistance across terminal A & B. 	5M 5M	1	L2
	OR			
12	Explain about the magnetic materials and BH characteristics.	10M	1	L2
13	Explain the parallel RLC circuit with neat circuit diagram and phasor diagram.	10M	2	L2
	OR			

14	A 50 Hz alternating voltage of 150V (R.M.S) applied across independently (i)Resistance of 10 Ω ii) Inductance of 0.2 H iii) Capacitance of 50 micro Farads. Find the expression for the instantaneous current in each case. Draw the phasor diagram in each case.	10M	2	L2
15	Using superposition theorem, determine the current flowing through the 82Ω resistor. 	10M	3	L2
	OR			
16	a) Explain maximum power transfer theorem with suitable example and derive the expression for maximum power delivered to the load. b) Explain millman's theorem with suitable example.	5M 5M	3	L2
17	a) Illustrate with neat diagram the principle of operation of DC generator. b) Obtain the expression for torque equation of DC motor.	5M 5M	4	L2
	OR			
18	a) Obtain the equivalent circuit of single phase transformer referred to the primary side. b) Write short notes on auto-transformer.	5M 5M	4	L2
19	Explain the function of circuit breaker and describe about MCB, ELCB and MCCB.	10M	5	L2
	OR			
20	a) Classify the types of batteries and mention the important characteristics of batteries. b) Write short notes energy consumption calculations.	5M 5M	5	L2