R18 Regulation *Subject code:2B2AF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, January 2026

APPLIED PHYSICS-II

(Common to EEE, ECE, CSE & IT)

Maximum Marks: 70 Date: 20.01.2026 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	Define semiconductor.	2M	1	L1
2	What are extrinsic semiconductors.	2M	1	L1
3	Write a note on PIN diode.	2M	2	L1
4	Write laws of electrostatics.	2M	2	L1
5	State Biot- Savart law.	2M	3	L1
6	Write any two applications of LED.	2M	3	L1
7	Define electric dipole.	2M	4	L1
8	Define Displacement vector.	2M	4	L1
9	What do you understand by hysteresis loop?	2M	5	L1
10	Write the applications of super conductors.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Calculate the carrier concentration for P- type semiconductor.	10M	1	L2
	OR			
12	Describe the construction and working principle of BJT.	10M	1	L2
13	Explain the construction and working of semiconductor laser.	10M	2	L2
	OR			
14	Explain the Avalanche photo diodes with their structure.	10M	2	L2
15	Explain physical significance for divergence and curl and derive equation of continuity.	10M	3	L2
	OR			
16	Derive Maxwell's equations in vacuum and non conducting medium.	10M	3	L2
17	What are dielectric materials and their types. Explain Clausius–Mosotti relation subjected to static electric field?	10M	4	L2
	OR			
18	Derive an expression for calculation of internal field for a cubic dielectric crystal.	10M	4	L2
19	What is Bohr magneton.Analyse and differentiate between dia, para and ferromagnetic materials.	10M	5	L2
	OR			
20	What is Meissner effect. Write about type I and type II superconductors	10M	5	L2