R22 Regulation *Subject code:4B1AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2026

ENGINEERING PHYSICS

(Common to CE, EEE & ECE)

Maximum Marks: 60 Date: 18.06.2026 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 (10X1M=10 Marks)		Marks	CO	BTL
1.a	What is a Wave and Particle.	1M	1	L1
b	Write the examples of semiconductors	1M	1	L1
c	What is PN junction diode.	1M	2	L1
d	Write the working principle of Solar cell	1M	2	L1
e	Define electric dipole moment	1M	3	L1
f	What are solid electrolytes?	1M	3	L1
g	Define Bhor magneton	1M	4	L1
h	Explain Meissner effect	1M	4	L1
i	Name the important components of laser	1M	5	L1
j	List the applications of optical fibers?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Derive Schrodinger's time dependent wave equation and explain the importance of wave function.	10M	1	L2
	OR			
3	Explain Kronig-Penny Model.	10M	1	L2
4	Derive an equation for the carrier concentration of electrons in case of intrinsic semiconductor?	10M	2	L2
	OR			
5	Explain the construction and working of LED.	10M	2	L2
6	What are ferroelectric materials? Mention their properties and applications.	10M	3	L2
	OR			
7	What is rechargeable ion batteries explain about Lithium-ion batteries.	10M	3	L2
8	Explain the origin of magnetic moment in magnetic materials	10M	4	L2
	OR			
9	Differentiate between Type-I and Type-II Superconductors.List applications of Superconductors	10M	4	L2

10	Describe the construction and working of He-Ne laser	10M	5	L2
	OR			
11	Describe the optical fibers in communication systems.	10M	5	L2