



R22 Regulation

Subject code:4BIAB

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

**B.Tech I Semester Supplementary Examinations, January 2026**

**ENGINEERING PHYSICS**

(Common to CE, EEE & ECE)

Maximum Marks: 60

Date: 07.01.2026

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 part 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 dielectric constant.	1M	4	L1
h	Define 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	Explain the motion of the particle in 1-D potential box.	10M	1	L2
OR				
3	Explain the conclusions of Kronig penny model.	10M	1	L2
4	Explain Hall effect and obtain the expression for Hall coefficient.	10M	2	L2
OR				
5	Explain the construction and working of LED.	10M	2	L2
6	What is electronic polarization explain? obtain an expression for electronic polarization.	10M	3	L2
OR				
7	Explain the construction and working of super capacitors.	10M	3	L2
8	Explain the origin of magnetic moment in magnetic materials.	10M	4	L2

9	a) Differentiate between Soft and Hard magnetic materials. b) Explain Messiner effect.	5M 5M	4	L2
10	Explain spontaneous and stimulated emission and derive relation between Einstein's coefficients.	10M	5	L2
	OR			
11	Describe the optical fibers in communication systems .	10M	5	L2