



R22 Regulation

Subject code:4B1AB

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

**B.Tech I Semester Supplementary Examinations, July 2025**

**ENGINEERING PHYSICS**  
(Common to CE, EEE & ECE)

Maximum Marks: 60

Date:16.07.2025

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 de-Broglie hypothesis?	1M	1	L1
b	State Bloch's theorem.	1M	1	L1
c	List the applications of P-N junction diode.	1M	2	L1
d	What is Photo diode?	1M	2	L1
e	Write some materials who exhibit Ferroelectricity.	1M	3	L1
f	How super capacitor are useful?	1M	3	L1
g	Define Susceptibility.	1M	4	L1
h	Write the temperature effect on Superconductor.	1M	4	L1
i	Define Stimulated emission.	1M	5	L1
j	What is basic principle involved in optical fiber?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Describe Davison and Germer's experiment and mention its importance.	10M	1	L2
OR				
3	Formulate energy values of a particle enclosed in one dimensional potential box.	10M	1	L2
4	Explain Hall effect and mention its applications.	10M	2	L2
OR				
5	Discuss the operation and V-I characteristics of P-N Junction diode.	10M	2	L2
6	A) Discuss Piezoelectric and Pyroelectric materials with their applications. B) Explain electronic polarization and obtain equation for electronic polarizability.	4M 6M	3	L2
OR				
7	Write note on Super capacitors and Solid fuel cells.	10M	3	L2
8	Classify the of magnetic materials into Dia, Para, Ferro, Anti ferro and Ferrites.	10M	4	L2
OR				
9	a) Discuss Type-I and Type-II Superconductors. b) Find some applications of Superconductors.	5M 5M	4	L2
10	Explain construction and working of RUBY LASER with neat diagram.	10M	5	L2
OR				
11	a) Explain construction of optical fibers. b) Classify types of optical fibers.	5M 5M	5	L2

