Regulation R18 *Subject code: 2B2AF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, September 2023

APPLIED PHYSICS-II

(Common to EEE,ECE,CSE & IT)

Maximum Marks: 70 Date:16.09.2023 **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 10 questions. Answer any 5 questions which carries 10M.
4. Each question carries 12marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 With increase of temperature, the conductivity of semiconductor increases, while that of metals decreases. Why?
2 What are extrinsic semiconductors. Give examples.
3 Write a note on PIN diode
4 Write laws of electrostatics.
5 Explain Biot- Savart law.
6 Explain dielectric constant.
7 Name the four types of polarization mechanisms in dielectrics.
8 Write about hysteresis in Ferro magnetic materials.
9 What is magnetic levitation
10 What is Meissner effect.

Part-B

Answer all the questions (5X10M=50Marks)

11 Derive expression for carrier concentration of electrons in intrinsic semiconductor? [10]

OR

12 Explain Zener diode and their I-V characteristics. [10]
13 Explain the working of solar cell. [10]

OR

14 Explain the construction and working of LED. [10]
15 What are Maxwell's equations. Derive them in differential form. [10]

OR

16 Calculate vector potential for a given magnetic field using Stoke's theorem. [10]
17 What are dielectric materials and their types. Explain Clausius–Mosotti relation subjected to static electric field? [10]

OR

18 Derive an expression for calculation of internal field for a cubic dielectric crystal. [10]
19 Explain the terms: (i) Magnetic induction (ii) Magnetic susceptibility (iii) Permeability of a medium (iv) Intensity of magnetization. [10]

OR

20 What is superconductivity? Classify type-I and type–II superconductors. [10]