Regulation R18 *Subject code:2B2AF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, January 2024

APPLIED PHYSICS-II
(Common to EEE,ECE,CSE and IT)

Maximum Marks: 70 Date:23.01.2024 **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)	CO	Bloom Tx
1	Differentiate diffusion and drift currents.	CO1	L2
2	Write any two applications of Hall effect?	CO1	L1
3	Differentiate direct and indirect band gap semiconductors.	CO2	L1
4	Write a note on PIN diode	CO2	L1
5	Write laws of electrostatics.	CO3	L1
6	State the Biot- Savart law.	CO3	L1
7	Explain dielectric constant.	CO4	L2
8	Name the four types of polarization mechanisms in dielectrics.	CO4	L1
9	What is domain theory of Ferro magnetism.	CO5	L1
10	What is Meissner effect.	CO5	L1

Part-B

	Answer all the questions (5X10M=50Marks)		
11	(a) What is p – type semiconductor? How it is obtained. [5M] (b) Derive equation for carrier concentration in n –type semiconductor. [5M]	CO1	L1 L3
	OR		
12	(a)What is Hall effect? Derive equation for Hall voltage, Hall electric field. [5M] (b) Explain the formation of P –N diode. [5M]	CO1	L1 L2
13	Explain the working of solar cell with characteristics and also write its applications. [10M]	CO2	L2
14	(a)Explain the construction and working of LED. [5M] (b) What are the advantages and disadvantages of LED in electronic display. [5M]	CO2	L2 L1
15	What are Maxwell's equations. Derive the continuity equation. [10M]	CO3	L1
	OR		

16	Calculate the magnetic field using Stoke's theorem. [10M]	CO3	L3
17	Derive an expression for internal fields. [10M]	CO4	L3
	OR		
18	(a) What do you understand by piezoelectricity, pyro electricity and ferro electricity. [5M] (b) Evaluate the expression for electronic polarization. [5M]	CO4	L1 L6
19	What are magnetic domains? Explain the domain theory of ferromagnetic. [10M]	CO5	L2
	OR		
20	What are soft and Hard magnetic materials? Write the differences of them and also two applications of soft and Hard magnetic materials. [10M]	CO5	L1