R20 Regulation *Subject code: 3B1AC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2024

Engineering Physics

(Common to CE & ME)

Maximum Marks: 70 Date:01.07.2024 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 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 (10X2M=20 Marks)

Q.NO	QUESTIONS	Bloom Tx	CO
1	Write about mechanical impedance.	L1	CO1
2	Write two similarities between electrical and mechanical harmonic oscillators.	L2	CO1
3	What is a transverse wave?	L1	CO2
4	Define standing sound waves.	L1	CO2
5	Define interferometers & its basic principle?	L1	CO3
6	Define destructive interference.	L1	CO3
7	What is Fresnel's diffraction?	L2	CO4
8	State Bragg's law.	L1	CO4
9	Write the acronym of LASER.	L1	CO5
10	Write about the structure of optical fibre.	L2	CO5
	Part-B		
Answer All the following questions. (10M X 5=50Marks)			
11	Obtain the generalized equation for damped harmonic oscillator. (10M)	L2	CO1
	OR		
12	Derive the equation of motion for damped electrical and mechanical harmonic oscillators. (10M)	L3	CO1
13	What is the transverse wave? Derive the differential equation of a transverse wave. (10M)	L3	CO2
	OR		
14	Derive the expression for reflection and transmission of transverse waves at a boundary. (10M)	L3	CO2
15	What is interference of light? Describe Young's double slit experiment for demonstration of interference of light? (10M)	L3	CO3
	OR		

16	What is Bragg's law and derive it. (10M)	L3	CO3
17	Give the theory of Fraunhofer diffraction due to a single slit. (10M)	L2	CO4
	OR		
18	With the help of neat labelled diagram, demonstrate Laue method? (10M)	L2	CO4
19	With the help of suitable diagram, Explain the construction and working of Ruby laser. (10M)	L3	CO5
	OR		
20	Distinguish between light propagation in step index optical fiber and graded Index optical fiber. (10M)	L3	CO5