R18 Regulation *Subject code:2B1AF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2026

PHYSICS-I

(Common to ECE & CSE)

Maximum Marks: 70 Date: 18.06.2026 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 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)		Marks	CO	BTL
1	What are Newton's rings? How they are formed	2M	1	L1
2	What is coherence? Explain.	2M	1	L1
3	Write the difference between Fresnel and Fraunhoffer diffraction.	2M	2	L1
4	Write about the types of polarization.	2M	2	L1
5	Write acronym for LASER and write any two application of laser.	2M	3	L1
6	Define population inversion and pumping.	2M	3	L1
7	What are step index and graded index fibre.	2M	4	L1
8	What are the application of optical fibres in communication system.	2M	4	L1
9	Define Compton effect.	2M	5	L1
10	Calculate the wavelength associated an electron with energy 2000ev	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Describe the Newton's rings experimental setup with a neat diagram. b) Write the applications of Newton's rings.	8M 2M	1	L2
	OR			
12	a) Describe Michelson's interferrometer? b) Newton's rings are observed in the reflected light of wavelength 5900^0A The diameter of tenth dark ring is 0.5cm. Find the radius of curvature of the lens used.	7M 3M	1	L2
13	Give theory of diffraction due to single slit and intensity distribution curve.	10M	2	L2
	OR			
14	Discuss the construction of Nicol prism.	10M	2	L2
15	Describe construction and working of ruby laser.	10M	3	L2
	OR			
16	Describe construction and working of semiconductor laser.	10M	3	L2
17	a) What is total internal reflection?	2M	4	L2

	b) Explain the losses associated with optical fibres?	8M		
	OR			
18	a) What is a dielectric wave guide. b) Write the application of optical fibre in medicine and sensors.	3M 7M	4	L2
19	Describe Davisson and Germer's experiment and explain how it enabled the verification of wave nature of matter.	10M	5	L2
	OR			
20	Show that the energies of a particle in 1-D potential box are quantized.	10M	5	L2