



R18 Regulation

Subject code:2B1AF

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, July 2025

PHYSICS-I

(Common to EEE, ECE, CSE & IT)

Maximum Marks: 70

Date:14.07.2025

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 (10X2M=20 Marks)		Marks	CO	BTL
1	What is Coherence?	2M	1	L1
2	Why Newton rings are circular?	2M	1	L1
3	What are different types of Diffraction?	2M	2	L1
4	State Brewster's law.	2M	2	L1
5	Distinguish between spontaneous and stimulated emission?	2M	3	L2
6	What is optical pumping?	2M	3	L1
7	What is step index optical fibre?	2M	4	L1
8	Write application of optical fibres in communication system.	2M	4	L1
9	Calculate the wavelength associated with an electron of energy 2000eV.	2M	5	L3
10	Define Compton effect.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Describe the Newton's rings experimental setup with a neat diagram.	10M	1	L1
	OR			
12	Describe Michelson's interferometer construction and working.	10M	1	L1
13	Give theory of diffraction due to single slit and intensity distribution curve?	10M	2	L1
	OR			
14	What is double refraction? Explain the Nicol prism with a neat diagram.	10M	2	L2
15	Derive Einstein's coefficient and obtain relation between them.	10M	3	L3
	OR			
16	Explain construction and working of ruby laser.	10M	3	L2
17	Derive an expression for Numerical aperture of an optical fibre and write about different types of optical fibers.	10M	4	L3
	OR			
18	Write the application of optical fibre in medicine and sensors?	10M	4	L1
19	Explain briefly the Plank's quantum theory of blackbody radiation and derive an expression for the energy density.	10M	5	L2
	OR			
20	Derive the Schrödinger's time independent wave equation.	10M	5	L3