

NOTICE

All students appearing for ATKT examinations in the course of Engineering Physics are, hereby, informed that the Internal Assessment (IA) Examination for EP1 & EP2 is scheduled on Tuesday, 06.05.2025 at 11 am in the ground floor classroom (Comp CR 1), opposite to the Physics laboratory.

The syllabus for the Examination is:

Semester	Module	Topic (Theory & Numericals both)	Weightage (%)
I	2	Crystallography	40
	4	Interference in thin Film	40
	5	Superconductors and Supercapacitors	20
II	2	Laser & Fibre Optics	40
	4	Relativity	35
	5	Nanotechnology	25

- The paper pattern will be the same as IA1 & IA2. (3Q*2M+1Q*4M+1Q*5M)
- Maximum marks = 15
- Duration = 45 min
- Minimum marks required = 06
- QB is uploaded on Moodle and is also displayed on the Notice Board

Coordinator

Sameer Hadkar
28/04/2025
Prof. Sameer Hadkar

Copy to:

- Physics Notice board
- Email to HoD and Principal
- Website incharge with a request to upload
- Whatsapp to students in their respective Physics groups

SN	Question Bank - EP1 IA - ATKT Exam - for May 2025 Exmination	Marks
	Exam Date: 06.05.2025 Thursday Time: 11 am to 11:45 am	
1	Compare the various parameters of Cubic Cell Structures (SC, BCC & FCC).	2
2	Numerical on density of crystalline solid (you need to know the Avogadro's number with correct units).	2
3	What are Miller Indices? How are they determined? Give example	2
4	What are the steps involved in finding Miller Indices? Give Example	2
5	Numerical on Interplanar spacing.	2
6	List the various properties of superconductors.	2
7	Numerical on critical magnetic field and critical temperature.	2
8	What are supercapacitors? Define energy density and power density.	2
9	Compare Capacitor with a battery.	2
10	Numerical (combined) on Miller Indices, interplanar spacing and Bragg's Law equation.	4
11	Numerical on thin film interference in transmitted system.	4
12	Numerical on Newton's Rings (finding radius of curvature or R1 of liquid).	4
13	Numerical on Wedge shaped film.	4
14	Distinguish between Type I & Type II superconductors (diagram is necessary).	5
15	Interference in thin film due to reflected system with condition for maxima and minima.	5
16	Short note on antireflecting and/or highly reflecting film.	5
17	Explain Meissner Effect and perfect diamagnetism.	5
18	Write a note on electrostatic double layer supercapacitor.	5
SN	Question Bank - EP2 IA - ATKT Exam - for May 2025 Exmination	Marks
	Exam Date: 06.05.2025 Thursday Time: 11 am to 11:45 am	
1	Differentiate between stimulated absorption, spontaneous emission and stimulated emission.	2
2	What is resonance cavity? Explain its importance in Lasers. (OR) What is an optical resonator? Explain its function.	2
3	Distinguish between SIF & GRINF	2
4	Numerical on V number. What is it also called as? What is its significance?	2
5	Distinguish between Special and General Theory of Relativity.	2
6	Numerical on Kinetic energy of a particle and finding its velocity.	2
7	Recall the terms Nanoscience, Nanotechnology and Nanoscale.	2
8	Explain the significance of surface to volume ratio.	2
9	Numerical on determine normalized frequency of the fibre and the number of modes the fibre will support.	4
10	Numerical of invariance of an equation using Galilean Transformation	4
11	Numerical on Length contraction and Time Dilation	4
12	Explain construction and working of a Semiconductor Laser. What serves as a resonant cavity in it? Give its merits, demerits and applications?	5
13	Explain the use of an optical fibre in communication system OR Draw the block diagram of an optical communication system and explain the function of each block.	5
14	Deduce the Lorentz Transformation (LT) equations.	5
15	Discuss with a neat labelled diagram, the Ball Milling method to synthesize a nanomaterial.	5
Please Note: If even a single student is appearing for both Semester 1 and Semester 2, then the timing for Semester 2 will be from 12:00 pm to 12:45 pm.		