

Indian National Physics Olympiad (INPhO)-2025
HOMI BHABHA CENTRE FOR SCIENCE EDUCATION
 Tata Institute of Fundamental Research
 V. N. Purav Marg, Mankhurd, Mumbai, 400 088

Question Paper

Date: 02 February 2025
 Time: 09:00-12:00 (3 hours)

Maximum Marks: 75

Instructions

Roll Number: 2505 - 11110 - 0353

1. This booklet consists of 9 pages and total of 5 questions. Write roll number at the top wherever asked.
2. Booklet to write the answers is provided separately. Instructions to write the answers are on the Answer Booklet.
3. Non-programmable scientific calculators are allowed. Mobile phones cannot be used as calculators.
4. Please submit the Answer Sheet at the end of the examination. You may retain the Question Paper.

Table of Constants

Speed of light in vacuum	c	$3.00 \times 10^8 \text{ m-s}^{-1}$
Magnitude of electron charge	e	$1.60 \times 10^{-19} \text{ C}$
Value of $1/4\pi\epsilon_0$		$9.00 \times 10^9 \text{ N-m}^2\text{-C}^{-2}$
Avogadro's number	N_A	$6.022 \times 10^{23} \text{ mol}^{-1}$
Acceleration due to gravity	g	9.81 m-s^{-2}
Universal Gas Constant	R	$8.31 \text{ J-K}^{-1}\text{-mol}^{-1}$
	R	$0.0821 \text{ l-atm-mol}^{-1}\text{-K}^{-1}$
Boltzmann constant	k_B	$1.3806 \times 10^{-23} \text{ J-K}^{-1}$
Permeability constant	μ_0	$4\pi \times 10^{-7} \text{ H-m}^{-1}$

Question Number	1	2	3	4	5	Total
Maximum Marks	8	14	16	22	15	75

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