HSC Physics Board Paper: Pattern & Analysis

Maharashtra Board, Std XII Physics (54) · 8 new-syllabus papers: Mar 2022, Jul 2022, Feb 2023, Jul 2023, Feb 2024, Feb 2025, Feb 2026, Jun 2026 · 400 questions read

70	98	31	16
marks · 3 hours	marks printed (with choice)	questions per paper	chapters, all asked every time

Paper pattern (same in all 8 papers)

Section	Question type	Questions	Attempt	Marks
A · Q.1	MCQ (write option + answer)	10 × 1	all	10
A · Q.2	Very short answer	8 × 1	all	8
B · Q.3–14	Short answer I	12 × 2	any 8	16
C · Q.15–26	Short answer II	12 × 3	any 8	24
D · Q.27–31	Long answer	5 × 4	any 3	12

Log tables allowed, calculators not allowed; physical constants are printed on the paper. Practicals and internal assessment carry the other 30 marks.

Chapter weightage (marks printed per paper)

Ch	Chapter (Balbharati)	Usual	Range
1	Rotational Dynamics	7	7
2	Mechanical Properties of Fluids	7	7
3	Kinetic Theory of Gases & Radiation	7	7
4	Thermodynamics	7	7
5	Oscillations	5	2–7
6	Superposition of Waves	6	3–6
7	Wave Optics	7	7
8	Electrostatics	6	6
9	Current Electricity	6	6
10	Magnetic Fields due to Electric Current	6	4–6
11	Magnetic Materials	6	3–8
12	Electromagnetic Induction	7	7–9
13	AC Circuits	6	6
14	Dual Nature of Radiation & Matter	5	5
15	Structure of Atoms & Nuclei	6	6–8
16	Semiconductor Devices	5	3–5

“Usual” is the median over the 8 papers. Ch 1–4 and 7 carry 7 marks in every paper. Small ranges (Ch 5/6, 10/11) come from questions that sit between two chapters.

Marks by question type

Type	Share	Marks
Numericals	31%	246
Derivations	26%	200
Define / state / explain	15%	119
MCQs	10%	80
Very short answers	8%	64
Diagram + explanation	7%	55
Distinguish / compare	3%	20

Out of 784 printed marks in 8 papers. Numericals and derivations together are well over half the paper.

What this means for our notes

- **Every chapter is asked every year** (usually 5–7 marks each); no chapter can be skipped.
- **Derivations** (about a quarter of the marks) need full step-by-step writing with a labelled diagram.
- **Numericals** are the largest share: formula, substitution, answer with unit, without a calculator.
- **Definitions and statements** are asked word-for-word from Balbharati.
- Section D (4 marks) is mostly a derivation, often with a small numerical.

Derivations asked again and again

Derivation	Ch	Asked in
Pressure of a gas from kinetic theory	Ch 3	Mar 2022 (4M) · Feb 2023 (4M) · Jun 2026 (4M)
Differential equation of SHM; x, v, a	Ch 5	Feb 2023 (3M) · Feb 2024 (2M) · Jun 2026 (4M)
Orbital magnetic moment of an electron	Ch 11	Jul 2022 (3M) · Jul 2023 (3M) · Jun 2026 (3M)
de Broglie wavelength	Ch 14	Mar 2022 (2M) · Jul 2022 (3M) · Feb 2026 (3M)
Maximum speed on a level curved road	Ch 1	Feb 2024 (2M) · Feb 2026 (2M) · Jun 2026 (2M)
Laws of reflection from Huygens' principle	Ch 7	Jul 2022 (3M) · Feb 2023 (3M)
Fringe width (double slit)	Ch 7	Feb 2024 (4M) · Feb 2026 (4M)
Beat frequency = difference of frequencies	Ch 6	Mar 2022 (3M) · Jul 2023 (3M)
Surface energy and surface tension	Ch 2	Feb 2023 (2M) · Feb 2024 (3M)
Work done in an isothermal process	Ch 4	Feb 2023 (2M) · Feb 2024 (3M)
Magnetic induction of a toroid	Ch 10	Feb 2023 (2M) · Jun 2026 (2M)
B due to a circular arc / loop centre	Ch 10	Feb 2025 (2M) · Feb 2026 (2M)
Period of a bar magnet in a field	Ch 11	Feb 2025 (3M) · Feb 2026 (3M)
Radius of the n-th Bohr orbit	Ch 15	Mar 2022 (2M) · Feb 2026 (2M)
Relation between α_{dc} and β_{dc}	Ch 16	Jul 2022 (3M) · Feb 2024 (3M)
KE of a rotating body	Ch 1	Mar 2022 (3M) · Jul 2022 (3M)
Conservation of angular momentum	Ch 1	Feb 2023 (2M) · Feb 2025 (2M)

Source: the 8 papers above, read question by question (Section D two-part questions counted as 2 + 2). Papers from AglaSem, Collegedunia, CollegeDekho and OMTEX scans; the board did not publish these copies itself.