



PhysicsByAaryan

TIFR Physics Syllabus — with Weightage

For Integrated PhD & PhD aspirants · 2027 cycle
Built from 745 actual TIFR Physics questions (2013–2026)

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Subject-wise weightage (descending)

#	Subject	Questions	Weightage
1	Classical Mechanics	129	17.3%
2	Quantum Mechanics	95	12.8%
3	Electromagnetism	94	12.6%
4	Mathematical Physics	82	11.0%
5	Electronics	59	7.9%
6	Experimental Physics	49	6.6%
7	Statistical Mechanics	44	5.9%
8	Thermodynamics	41	5.5%
9	Nuclear and Particle Physics	38	5.1%
10	Optics	36	4.8%
11	Solid State Physics	29	3.9%
12	Atomic and Molecular Physics	23	3.1%
13	Modern Physics	17	2.3%
14	Geometry	9	1.2%

Inside this PDF: every subject with its weightage and topics ordered by frequency of appearance in real TIFR Physics papers.

Subject-by-subject syllabus

Each subject below is presented as a complete unit — heading, intro and full topic table — and never split across pages.

Classical Mechanics

129 questions across TIFR Physics 2013–2026 · **17.3%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Central Forces, Gravitation and Universe	25	19.4%
2	Special Theory of Relativity	24	18.6%
3	Basic Mechanics	22	17.1%
4	Oscillations	18	14.0%
5	Rotational Motion	14	10.9%
6	Lagrangian and Hamiltonian	13	10.1%
7	Bulk Matter	6	4.7%
8	Pseudo Forces	4	3.1%
9	Canonical Transformation and poisson bracket	3	2.3%

Quantum Mechanics

95 questions across TIFR Physics 2013–2026 · **12.8%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Basic Quantum Mechanics	41	43.2%
2	Angular Momentum and Hydrogen atom	25	26.3%
3	Potential Well	15	15.8%
4	quantum Harmonic Oscillator	7	7.4%
5	Perturbation theory	5	5.3%
6	Variational Principle	1	1.1%
7	WKB Approximation	1	1.1%

Electromagnetism

94 questions across TIFR Physics 2013–2026 · **12.6%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Electrostatics	26	27.7%
2	EM Waves	19	20.2%
3	Magnetostatics	12	12.8%
4	Electrodynamics	8	8.5%
5	Multipole Expansion	7	7.4%
6	Electric Field in matter	6	6.4%
7	Image Problems	5	5.3%
8	Radiations	5	5.3%
9	Potential Formulation	3	3.2%
10	Waveguides	2	2.1%
11	Relativistic EMT	1	1.1%

Mathematical Physics

82 questions across TIFR Physics 2013–2026 · **11.0%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Differential Equations	15	18.3%
2	Matrices	14	17.1%
3	Complex Analysis	13	15.9%
4	Limits, Continuity and Differentiation	10	12.2%
5	Delta, Gamma, Beta and Integrals	9	11.0%
6	Probability	8	9.8%
7	Fourier and Laplace Analysis	6	7.3%
8	Vector Analysis	5	6.1%
9	Tensors	2	2.4%

Electronics

59 questions across TIFR Physics 2013–2026 · **7.9%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Logic Gates	17	28.8%
2	OPAMP	16	27.1%
3	AC and DC Circuits	7	11.9%
4	Diodes	5	8.5%
5	Mixed	5	8.5%
6	Filters	4	6.8%
7	Transistors	3	5.1%
8	Basic Electronics	2	3.4%

Experimental Physics

49 questions across TIFR Physics 2013–2026 · **6.6%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Instruments	21	42.9%
2	Data Analysis	14	28.6%
3	Error Analysis	7	14.3%
4	Experimental design	7	14.3%

Statistical Mechanics

44 questions across TIFR Physics 2013–2026 · **5.9%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Canonical Ensemble	21	47.7%
2	Quantum Stat. Mech.	9	20.5%
3	Microstates	8	18.2%
4	Random Walk	3	6.8%
5	Microcanonical Ensemble	2	4.5%
6	Grand Canonical Ensemble	1	2.3%

Thermodynamics

41 questions across TIFR Physics 2013–2026 · **5.5%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Laws of thermodynamics	18	43.9%
2	Kinetic Theory of Gases	11	26.8%
3	Carnot Cycle	7	17.1%
4	Phase transition	5	12.2%

Nuclear and Particle Physics

38 questions across TIFR Physics 2013–2026 · **5.1%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Radioactivity	18	47.4%
2	Particle Physics	8	21.1%
3	Liquid Drop Model	5	13.2%
4	Accelerator and Detectors	4	10.5%
5	Shell Model	3	7.9%

Optics

36 questions across TIFR Physics 2013–2026 · **4.8%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Interference	14	38.9%
2	Ray Optics	9	25.0%
3	Diffraction	7	19.4%
4	Polarization	6	16.7%

Solid State Physics

29 questions across TIFR Physics 2013–2026 · **3.9%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Lattice Vibrations and Thermal Properties	13	44.8%
2	Semiconductor Physics	5	17.2%
3	Crystallography	4	13.8%
4	XRay Diffraction	4	13.8%
5	Superconductivity and magnetic properties	3	10.3%

Atomic and Molecular Physics

23 questions across TIFR Physics 2013–2026 · **3.1%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Bohar model	8	34.8%
2	Effects in atomic physics	8	34.8%
3	Molecular Physics	7	30.4%

Modern Physics

17 questions across TIFR Physics 2013–2026 · **2.3%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Light Matter interaction	10	58.8%
2	Black Body Radiations	7	41.2%

Geometry

9 questions across TIFR Physics 2013–2026 · **1.2%** of every paper on average. Topics below are taken directly from the PYQ dataset and ordered by **actual weightage**.

#	Topic	PYQs	Weight in subject
1	Geometry	9	100.0%

Practice the matching PYQs on physicspyq.com · Join Aaryan Sir's full TIFR · JEST · IIT JAM 2027 batch at physicsbyaaryan.com