

JEE Advanced 2023 Paper 2 Detailed Analysis

4th June, 2023 (Sunday 2:30 pm – 5:30 pm)

The Joint Entrance Examination (Advanced) 2023 was conducted by the seven Zonal Coordinating IITs under the guidance of the Joint Admission Board 2023 (JAB). This year, IIT Guwahati conducted JEE Advanced 2023 in computer-based test (CBT) mode. JEE Advanced was held in two shifts. Paper 1 was conducted from 9 am to 12 pm and Paper 2 was conducted from 2:30 pm to 5:30 pm.

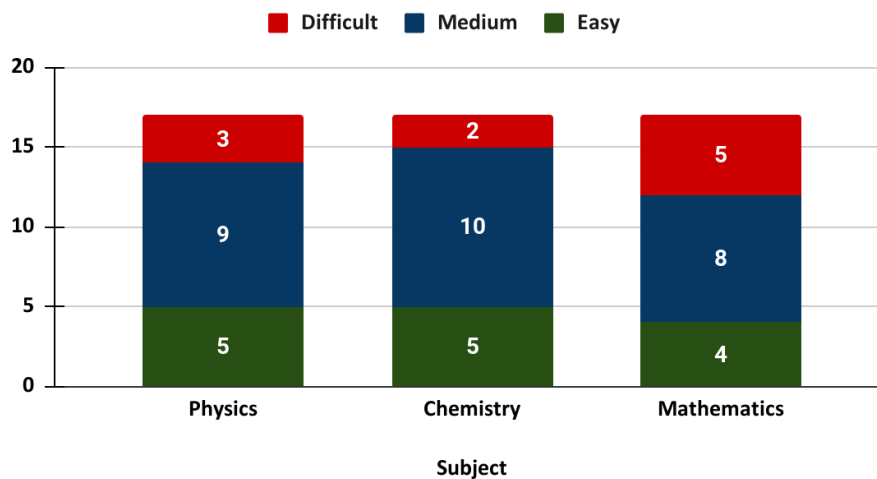
The paper pattern was different in comparison to last Year. Paper 2 had a total of 51 questions, distributed evenly across three subjects i.e, Physics, Chemistry & Mathematics.

SUBJECT-WISE DIFFICULTY LEVEL ANALYSIS: NO OF QUESTIONS

This is the analysis on the basis of an official question paper which was sent to the respective candidate. Hence it has covered all the questions.

Subject	Easy		Medium		Difficult		Grand Total	
	No of Questions	Total Marks	No of Questions	Total Marks	No of Questions	Total Marks	No of Questions	Total Marks
Physics	5	17	9	33	3	10	17	60
Chemistry	5	17	10	35	2	8	17	60
Mathematics	4	12	8	32	5	16	17	60
Grand Total	14	46	27	100	10	34	51	180

Subject Wise Difficulty Level



Experts feel that Mathematics Paper 2 had the maximum moderately difficult questions as compared to Physics and Chemistry. Out of **180** marks, **46** marks constituted of easy level questions, **100** marks constituted of moderate level questions and **51** marks constituted of difficult level questions.

Physics

Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Subject	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	12th	Physics	Electric potential & Capacitance	Electrc potential due to dipole	Easy	1	MCQs with one correct answer	3
2	11th	Physics	Unit & Measurement	Dimensional Analysis	Easy	1	MCQs with one correct answer	3
3	11th	Physics	Motion in Plane	General Kinematics	Medium	1	MCQs with one correct answer	3
4	11th	Physics	Kinetic Theory of Gases	Degree of freedom, Internal Energy	Easy	1	MCQs with one correct answer	3
5	12th	Physics	Wave Optics	Optical & Geomtrical Path, Wavefront	Medium	2	MCQs more than one correct answer	4
6	11th	Physics	System of Particles & Rotational Motion	Impulse, Rolling	Medium	2	MCQs more than one correct answer	4
7	11th	Physics	Electromagnetic Waves	EM waves mathematicsl representation	Easy	2	MCQs more than one correct answer	4

8	11th	Physics	System of Particles & Rotational Motion	Impulse	Medium	3	Non-negative integer type questions	4
9	12th	Physics	Electromagnetic Induction	Motional EMF	Medium	3	Non-negative integer type questions	4
10	11th	Physics	Waves	Standing Waves	Easy	3	Non-negative integer type questions	4
11	11th	Physics	Mechanical Properties of fluids	Capillary Tube, Thermodynamic Process	Medium	3	Non-negative integer type questions	4
12	12th	Physics	Nuclear	Radioactive Decay	Medium	3	Non-negative integer type questions	4
13	11th	Physics	Thermodynamics	Work done in cyclic process	Difficult	3	Non-negative integer type questions	4
14	11th	Physics	Waves	Doppler's Effect	Medium	4	Paragraph based MCQs	3
15	11th	Physics	Waves	Doppler's Effect	Medium	4	Paragraph based MCQs	3
16	11th	Physics	Mechanical Properties of fluids	KTG, Continuity Equation	Difficult	4	Paragraph based MCQs	3
17	11th	Physics	Mechanical Properties of fluids	KTG, Continuity Equation	Difficult	4	Paragraph based MCQs	3

Chemistry

Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Subject	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	12th	Mathematics	Differential Equation	Linear Differential Equation	Easy	1	MCQs with one correct answer	3
2	12th	Mathematics	Probability	Addition Theorem	Easy	1	MCQs with one correct answer	3
3	12th	Mathematics	Inverse Trigonometric Functions	inverse trigonometric equations	Easy	1	MCQs with one correct answer	3
4	11th	Mathematics	Vector Algebra	Algebra of Vectors	Easy	1	MCQs with one correct answer	3
5	12th	Mathematics	Matrices	Inverse of Matrix	Medium	2	MCQs more than one correct answer	4
6	11th	Mathematics	Continuity and Differentiability	Continuity and Differentiability	Medium	2	MCQs more than one correct answer	4
7	12th	Mathematics	Applications of derivatives	Mean value theorem	Medium	2	MCQs more than one correct answer	4
8	12th	Mathematics	Integration	Leibnitz rule	Medium	3	Non-negative integer type questions	4
9	12th	Mathematics	Differential Equation	Linear differential Equation	Medium	3	Non-negative integer type questions	4
10	12th	Mathematics	Probability	Conditional probability	Medium	3	Non-negative integer type questions	4
11	11th	Mathematics	Complex numbers	nth root of unity	Difficult	3	Non-negative integer type questions	4
12	12th	Mathematics	Matrices	P & C in matrices	Medium	3	Non-negative integer type questions	4
13	11th	Mathematics	Circle	Radial Axis	Medium	3	Non-negative	4

							integer type questions	
14	11th	Mathematics	Solution of Triangle	Sine rule and relation between r and R of triangle	Difficult	4	Paragraph based MCQs	3
15	11th	Mathematics	Solution of Triangle	Sine rule and relation between r and R of triangle	Difficult	4	Paragraph based MCQs	3
16	11th	Mathematics	Permutations and combination	Applications of P & C in geometry	Difficult	4	Paragraph based MCQs	3
17	11th	Mathematics	Permutations and combination	Applications of P & C in geometry	Difficult	4	Paragraph based MCQs	3

Mathematics

Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Subject	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	11th	Chemistry	Chemical bonding	Molecular Orbital Theory	Easy	1	MCQs with one correct answer	3
2	12th	Chemistry	Surface Chemistry	Type & properties of colloids	Easy	1	MCQs with one correct answer	3
3	12th	Chemistry	Haloalkenes & Haloarenes	Reactions of Haloalkenes	Medium	1	MCQs with one correct answer	3
4	12th	Chemistry	Biomolecules	Disaccharides	Easy	1	MCQs with one correct answer	3
5	12th	Chemistry	Coordination Compounds	Isomerism	Medium	2	MCQs more than one correct answer	4
6	12th	Chemistry	Solid states	Packing efficiency	Difficult	2	MCQs more than one correct answer	4
7	12th	Chemistry	Aldehyde Ketones and	Name reactions	Difficult	2	MCQs more than one correct answer	4

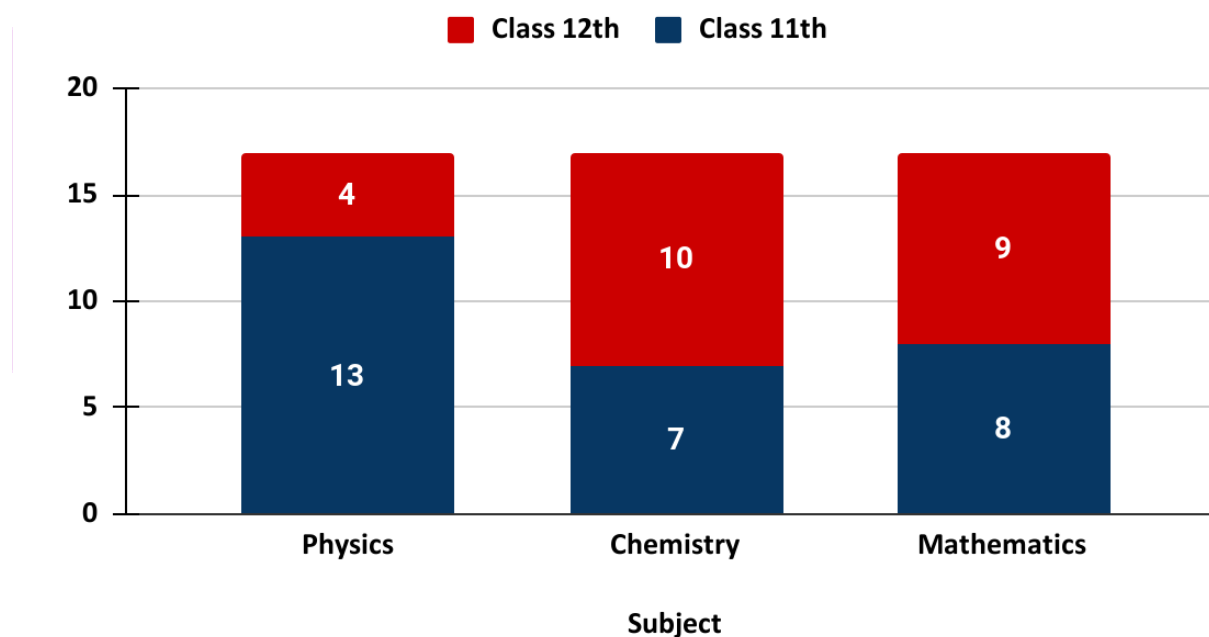
			Carboxylic acid					
8	11th	Chemistry	Redox reactions	Equation balancing	Easy	3	Non-negative integer type questions	4
9	11th	Chemistry	Chemical Bonding	Hybridisation	Medium	3	Non-negative integer type questions	4
10	11th	Chemistry	Redox reactions	Oxidation states	Medium	3	Non-negative integer type questions	4
11	11th	Chemistry	Atomic structure	Bohr Model of Hydrogen atom	Easy	3	Non-negative integer type questions	4
12	12th	Chemistry	Solutions	Colligative properties	Medium	3	Non-negative integer type questions	4
13	12th	Chemistry	Haloalkenes & Haloarenes	Reactions & Properties	Medium	3	Non-negative integer type questions	4
14	11th	Chemistry	Thermodynamics	Entropy	Medium	4	Paragraph based MCQs	3
15	11th	Chemistry	Thermodynamics	Heat Capacity & Entropy	Medium	4	Paragraph based MCQs	3
16	12th	Chemistry	Alcohols Phenols and ether	Name reactions	Medium	4	Paragraph based MCQs	3
17	12th	Chemistry	Amines	Name reactions	Medium	4	Paragraph based MCQs	3

CLASS WISE QUESTION DISTRIBUTION

As per our expert faculties, the questions from Class 11th syllabus dominated Class 12th syllabus.

Subject	11th		12th		Total Percentage	
	No. of Questions	Total Marks	No of Questions	Total Marks	Class 11	Class 12
Physics	13	45	4	15	72%	22%
Chemistry	7	25	10	35	39%	56%
Mathematics	8	27	9	33	44%	50%
Grand Total	28	97	23	83	52%	43%

Class Wise Question Distribution



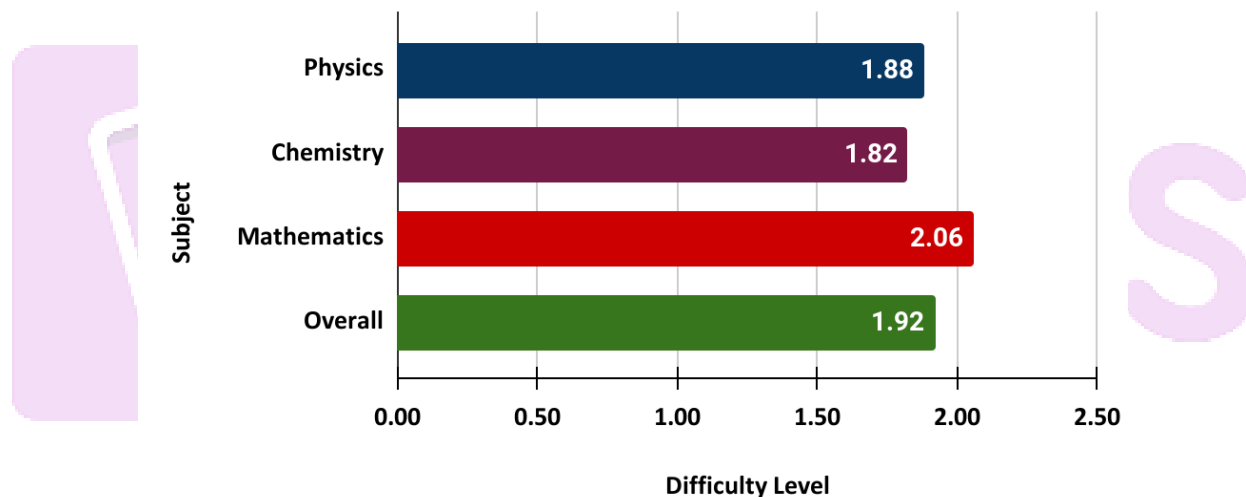
OVERALL DIFFICULTY LEVEL ANALYSIS

In this analysis, we have rated every question on a scale of 1 to 3. The individual ratings are then averaged to calculate the overall difficulty level.

- 1: Easy
- 2: Moderate
- 3: Difficult

Subject	Difficulty Level
Physics	1.88
Chemistry	1.82
Mathematics	2.06
Overall	1.92

Overall Difficulty Level - JEE Mains 2023



In Physics, more weightage was given to chapters like Waves and Oscillations, Wave Optics, Fluids, EM Waves, Thermodynamics, Modern Physics, Current Electricity, Kinematics and Electrostatics. Physics was easy to moderate and most of the questions were doable.

In Chemistry, more weightage was given to Organic and Physical chemistry as compared to Inorganic. Inorganic Chemistry had a few questions that were directly from NCERT. Chemistry was moderately easy.

In Mathematics, questions were unbalanced and tricky. Calculus, Probability, Permutation & Combinations had more questions in the paper. Mixed concept questions were taken from Matrices & Functions. The section was tough as compared to the previous year but all the chapters got equal weightage.

The overall difficulty of JEE Advanced (Paper 2) 2023 was of moderate difficulty and was comparatively a bit easier than Paper 1.

*The overall difficulty level of the paper was moderate to difficult. As per our subject experts, Physics was moderately easy, Chemistry was of moderate difficulty and Maths was relatively difficult. Paper 1 was a bit more difficult than Paper 2.

