

## JEE Advanced 2022 Paper 2 Detailed Analysis

28th August, 2022 (Sunday 2:30 am – 5:30 pm)

JEE (Advanced) 2022 was conducted in two parts (Paper 1 & Paper 2) by IIT Bombay. The exam is conducted in a computer-based (online) mode. Paper 1 was conducted from 9 AM to 12 PM and Paper 2 was conducted from 2:30 PM to 5:30 PM. Only candidates who appear in both Paper 1 and Paper 2 will be considered for ranking. Results will be declared on Sunday, September 11, 2022 at ([jeeadv.ac.in](http://jeeadv.ac.in)). Category-wise All India Ranks (AIR) of successful candidates will be available on the online portal after the results are declared.

### OVERALL MARKS DISTRIBUTION

The paper pattern was different in comparison to last Year. Paper 2 had a total of 54 questions, distributed evenly across three subjects i.e, Physics, Chemistry & Mathematics.

Each of the subjects were divided into 3 sections, which consisted of different types of questions. Below is the table for the question paper pattern which was similar to all the subjects :

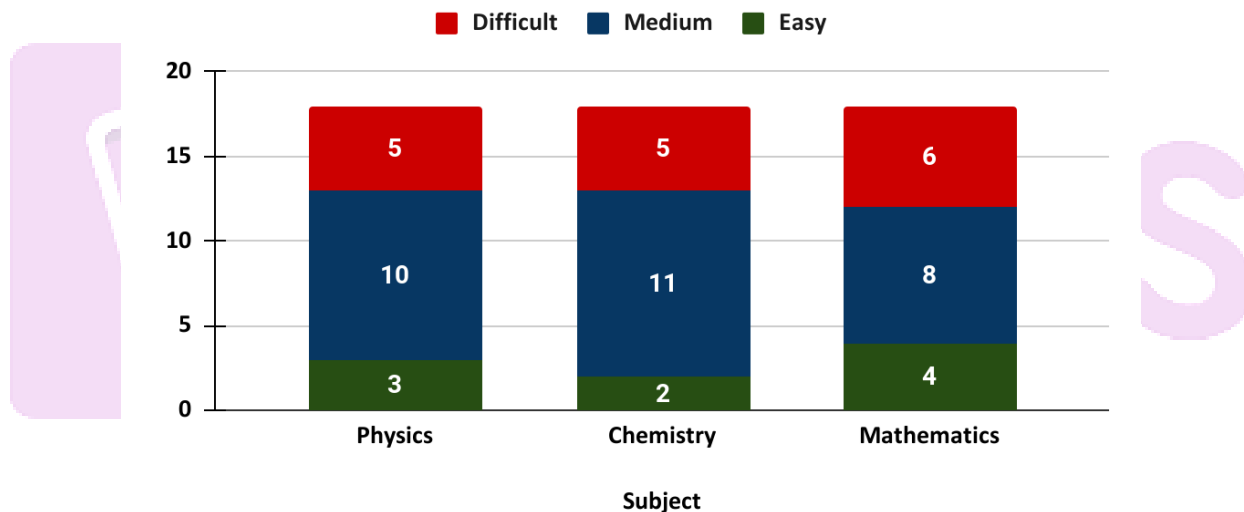
Question Type	No. of Questions	Marks for Each Question	Total Marks	Marking Scheme
Numerical Value	8	3	24	<ul style="list-style-type: none"><li>• Correct numerical answer = +2 marks</li><li>• In all other cases = 0 marks</li></ul>
MCQs more than one correct answer	6	4	24	<ul style="list-style-type: none"><li>• If only (all) the correct option(s) is(are) chosen = +4 marks</li><li>• If all the four options are correct but ONLY three options are chosen = +3</li><li>• If three or more options are correct but ONLY two options are chosen, both of which are correct = +2 marks</li><li>• If two or more options are correct but ONLY one option is chosen and it is a correct option = +1 marks</li><li>• No option selected = 0 marks</li><li>• In all other cases = -2 marks</li></ul>
MCQs with one correct answer	4	3	12	<ul style="list-style-type: none"><li>• Correct answer = +3marks</li><li>• No option selected = 0 marks</li><li>• In all other cases = -1 marks</li></ul>

## SUBJECT-WISE DIFFICULTY LEVEL ANALYSIS: NO OF QUESTIONS

This is the analysis on the basis of an official question paper which was sent to respective candidate. Hence have 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	3	9	10	33	5	18	18	60
Chemistry	2	8	11	36	5	16	18	60
Mathematics	4	13	8	27	6	20	18	60
<b>Grand Total</b>	<b>9</b>	<b>30</b>	<b>29</b>	<b>96</b>	<b>16</b>	<b>54</b>	<b>54</b>	<b>180</b>

### Subject Wise Difficulty Level



Experts feel that Paper 2 had an equal proportion of moderately difficult questions in Physics, Chemistry & Mathematics. Out of **180** marks, **30** marks paper can be considered of easy level, **96** marks can be considered of medium difficulty level and **54** marks can be considered to be of difficult level.

## Physics

Physics was of easy to moderate level. Physics had 3 easy, 10 medium and 5 difficult questions. Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	11th	Work, Energy and Power	The Work-Energy Theorem	Difficult	1	Numerical type question stems	3
2	12th	Nuclei	Radioactivity	Easy	1	Numerical type question stems	3
3	12th	Current Electricity	Wheatstone Bridge	Difficult	1	Numerical type question stems	3
4	11th	Units and Measurements	Dimensional Analysis and Its Applications	Medium	1	Numerical type question stems	3
5	12th	Ray Optics and Optical Instruments	Refraction through plane surface	Medium	1	Numerical type question stems	3
6	12th	Electric Charges and Fields	Electric Flux	Medium	1	Numerical type question stems	3
7	11th	Oscillations	Oscillations due to a spring	Medium	1	Numerical type question stems	3
8	12th	Ray Optics and Optical Instruments	Spherical Mirrors	Medium	1	Numerical type question stems	3
9	12th	Electrostatic Potential and Capacitance	Electric field and potential due to uniformly charged non-conducting force	Difficult	2	MCQs more than one correct answer	4
10	12th	Current Electricity	Power	Difficult	2	MCQs more than one correct answer	4
11	11th	Thermodynamics	Thermodynamic Process	Difficult	2	MCQs more than one correct answer	4
12	12th	Electrostatic Potential and Capacitance	Potential Due to circular disc	Medium	2	MCQs more than one correct answer	4
13	12th	Wave Optics	Young's Double Slit Experiment (Alternate Method)	Medium	2	MCQs more than one correct answer	4
14	11th	Thermodynamics	Thermodynamic Process	Medium	2	MCQs more than one correct answer	4

15	11th	System of Particles and Rotational Motion	Angular Momentum of rigid bodies	Easy	3	Multiple Choice Question	3
16	12th	Dual Nature of Radiation and Matter	Einstein's Photoelectric Effect	Easy	3	Multiple Choice Question	3
17	12th	Experimental Physics	Screw Gauge	Medium	3	Multiple Choice Question	3
18	12th	Moving Charges and Magnetism	Magnetic Force On A Current Carrying Conductor	Medium	3	Multiple Choice Question	3

## Chemistry

Chemistry had moderate to difficult levels of questions. Chemistry had 11 medium and 2 easy & 5 difficult questions. Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	11th	Equilibrium	Solubility	Difficult	1	Numerical type question stems	3
2	12th	Solutions	Colligative Properties	Medium	1	Numerical type question stems	3
3	12th	Electrochemistry	Kohlrausch's Law	Difficult	1	Numerical type question stems	3
4	12th	The P-block elements	xenon-fluorine compounds	Medium	1	Numerical type question stems	3
5	11th	Chemical Bonding	Molecular Orbital Theory (MOT)	Medium	1	Numerical type question stems	3
6	11th	Hydrocarbons	Preparation of alkene	Medium	1	Numerical type question stems	3
7	11th	Hydrocarbons	Ozonolysis and Kolbe's Electrolysis	Medium	1	Numerical type question stems	3
8	11th	Hydrocarbons	Ozonolysis	Medium	1	Numerical type question stems	3
9	11th	Mole concept	Law of multiple proportions	Medium	2	MCQs more than one correct answer	4
10	11th	Thermodynamics	Entropy change in various process	Medium	2	MCQs more than one correct answer	4
11	11th	The P-block elements	Chemical reaction of boron and its compound	Easy	2	MCQs more than one correct answer	4

12	12th	General Principles and Processes of Isolation of Elements	Extraction of Iron	Medium	2	MCQs more than one correct answer	4
13	12th	Aldehydes, Ketones and Carboxylic Acids	Electrophilic Aromatic substitution and Clemmenson reduction	Difficult	2	MCQs more than one correct answer	4
14	12th	Polymers	Addition Polymerisation	Easy	2	MCQs more than one correct answer	4
15	12th	Solid State	Packing Efficiency	Difficult	3	Multiple Choice Question	3
16	12th	The P-block element	Oxides of chlorine	Medium	3	Multiple Choice Question	3
17	12th	Qualitative Analysis	Analysis of cation	Medium	3	Multiple Choice Question	3
18	12th	Biomolecules	Ene-Diol Rearrangement	Difficult	3	Multiple Choice Question	3

## Mathematics

Mathematics had moderate to difficult levels of questions. Mathematics had 8 medium and 4 easy & 6 difficult questions. Following is the question distribution table as per Class, Chapter, Topic & Difficulty -

Q. No	Class	Chapter Name	Topic Name	Difficulty Level	Section	Question type	Marks per Question
1	11th	Trigonometric Functions	Compound Angles	Difficult	1	Numerical type question stems	3
2	12th	Differential Equations	Variable separable	Easy	1	Numerical type question stems	3
3	12th	Integrals	Evaluation of Definite Integrals By Substitution	Easy	1	Numerical type question stems	3
4	11th	Functions	Properties of logarithms	Easy	1	Numerical type question stems	3
5	11th	Limits and Derivatives	Working Rule For The Evaluation of Limit of 0/0 Form	Medium	1	Numerical type question stems	3
6	12th	Determinants	Caley- Hamilton theorem	Medium	1	Numerical type question	3

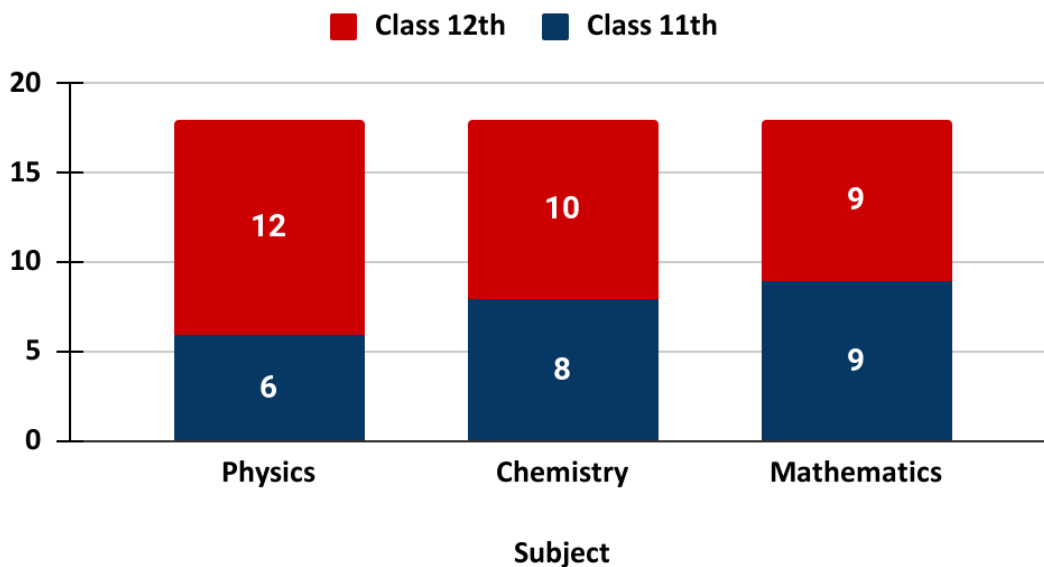
						stems	
7	11th	Conic Sections	Hyperbola - Tangents	Difficult	1	Numerical type question stems	3
8	12th	Application of Integrals	Area Bounded Between Two Curves	Medium	1	Numerical type question stems	3
9	11th	Properties of Triangles	Sine Rule	Difficult	2	MCQs more than one correct answer	4
10	12th	Application of Derivatives	Maxima and Minima	Medium	2	MCQs more than one correct answer	4
11	11th	Complex Numbers	Conjugate and Modulus of a Complex Number	Medium	2	MCQs more than one correct answer	4
12	11th	Conic Sections	Circle - Position of Circles	Difficult	2	MCQs more than one correct answer	4
13	12th	Vector Algebra	Scalar Triple Product	Medium	2	MCQs more than one correct answer	4
14	12th	Differential Equations	Linear Differential Equation	Easy	2	MCQs more than one correct answer	4
15	11th	Permutations and Combinations	Application of Multinomial Expansion	Difficult	3	Multiple Choice Question	3
16	12th	Matrices	Product of matrices	Medium	3	Multiple Choice Question	3
17	12th	Probability	Bayes theorem	Medium	3	Multiple Choice Question	3
18	11th	Sequences and Series	Telescopic Sums and Products	Difficult	3	Multiple Choice Question	3

## CLASS WISE QUESTION DISTRIBUTION

As per our expert faculties, the questions from Class 12th syllabus dominated Class 11th syllabus in Physics and Chemistry. In Mathematics, the Class 11th syllabus and Class 12th syllabus had an equal weightage. Below is the Class wise question distribution table -

Subject	11th		12th		Total Percentage	
	No. of Questions	Total Marks	No of Questions	Total Marks	Class 11	Class 12
Physics	6	20	12	40	33%	67%
Chemistry	8	27	10	33	44%	56%
Mathematics	9	30	9	30	50%	50%
<b>Grand Total</b>	<b>23</b>	<b>77</b>	<b>31</b>	<b>103</b>	<b>43%</b>	<b>57%</b>

### Class Wise Question Distribution



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## OVERALL DIFFICULTY LEVEL ANALYSIS

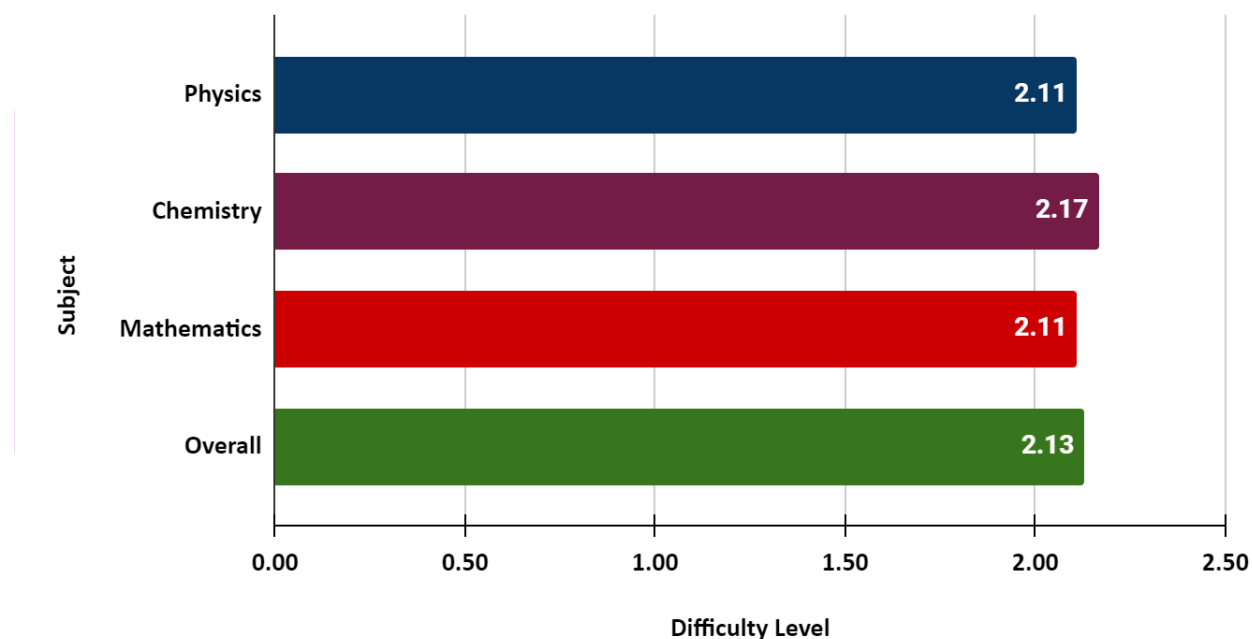
In this analysis, we have rated every question on a scale of 1 to 3.

The individual ratings are then averaged to calculate the overall difficulty level.

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

Subject	Difficulty Level
Physics	2.11
Chemistry	2.17
Mathematics	2.11
Overall	2.13

### Overall Difficulty Level - JEE Mains 2022



The overall difficulty of JEE Advanced (Paper 2) 2022 was of moderate difficulty and was comparatively more difficult than Paper 1.

The difficulty level of the exam was a bit easier compared to previous years as per our expert faculties.

- Physics was at the same level as the previous year
- Chemistry was more difficult than the previous year.
- Mathematics was a bit easier than the previous year.