

# A Detailed Analysis of JEE Main Session 2 Paper (B.E./B.Tech) 2023

## 15th April 2023 Shift 1 ( 9 am - 12 pm)

### (Memory Based)

**Disclaimer:** Although students had to answer only 75 questions in exam, analysis below pertains to  $\leq 90$  questions

The JEE Main 2023 (B.E./B.Tech) exam is being conducted entirely in computer-based mode by the National Testing Agency (NTA). JEE Main Exam 2023 (B.E./B.Tech.) will be held on 6th, 8th, 10th, 11th, and 12th April, 2023. The paper will be conducted in two shifts, i.e. **first shift from 9:00 am to 12:00 pm & second shift from 3:00 pm to 6:00 pm.**

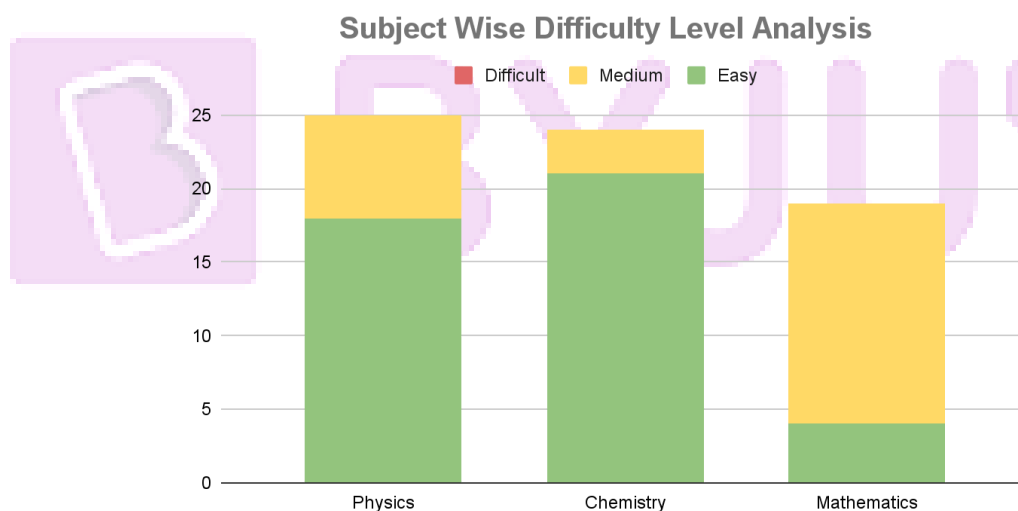
#### JEE Main Exam Pattern 2023: Paper 1 (B.E/B.Tech)

Particulars	Details
Exam Mode	Computer-based examination
Test Duration	Three hours
No. of Subjects	(i)Physics (ii)Chemistry (iii)Mathematics
Type of questions	MCQs: 4 options with only 1 correct option  Numerical Value Questions: Questions whose answers are to be filled in as a numerical value
JEE Mains Total No. of questions  <b>Total: 75 Questions (25 questions in each subject)</b>	<b>Mathematics: 25 (20+10)</b> 20 Questions were compulsory MCQ Based & 10 Questions were answers as a numerical value. Out of these 10 questions, 5 questions are compulsory.  <b>Physics: 25 (20+10)</b> 20 Questions were compulsory MCQ Based & 10 Questions were answers as a numerical value. Out of these 10 questions, 5 questions are compulsory.  <b>Chemistry: 25 (20+10)</b> 20 Questions were compulsory MCQ Based & 10 Questions were answers as a numerical value. Out of these 10 questions, 5 questions are compulsory.
JEE Mains Total Marks	<b>300 Marks</b>
JEE Main Marking Scheme	<b>MCQ's:</b> Four marks will be awarded for each correct answer and there will be a negative marking of one mark for each wrong answer.  <b>Questions with numerical value answers:</b> Four marks will be awarded for each correct answer and there will be a negative marking of one mark for each wrong answer.

### Subject Wise Difficulty Level Analysis

Although it was a memory-based question analysis, our experts could figure out **68 questions out of 90** i.e. **25** questions in Physics, **24** questions in Chemistry and **19** questions in Mathematics.

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	18	72	7	28	0	0	25	100
Chemistry	21	84	3	12	0	0	24	96
Mathematics	4	16	15	60	0	0	19	76
Grand Total	43	172	25	100	0	0	68	272



- Physics was rated as easy to moderate on the difficulty level. It consisted mostly of easy & moderate questions. Most of the questions were NCERT based and were evenly distributed among all major units.
- Chemistry was rated as easiest among three subjects. Inorganic & Organic Chemistry had more weightage compared to Physical Chemistry.
- Mathematics was rated as moderate to difficult on the difficulty level. Questions were asked from all chapters. Emphasis was on Algebra & Calculus.

### **Question Wise Distribution Analysis**

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

#### **Physics**

<b>Date &amp; Shift</b>	<b>Question No</b>	<b>Class</b>	<b>Section</b>	<b>Subject</b>	<b>Chapter Name</b>	<b>Topic Name</b>	<b>Difficulty Level</b>
15 April_ S1	1	12th	A	Physics	Nuclei	Radiactivity	Easy
15 April_ S1	2	11th	A	Physics	Work Energy & Power	Work Done By Variable Force	Medium
15 April_ S1	3	12th	A	Physics	Dual Nature Of Matter & Radiations	de broglie Wavelength	Easy
15 April_ S1	4	11th	A	Physics	Motion In A Straight Line	Position Time Relation	Easy
15 April_ S1	5	12th	A	Physics	Communication System	Line Of Sight Communication	Easy
15 April_ S1	6	11th	A	Physics	Motion In A Plane	Vector Algebra	Easy
15 April_ S1	7	11th	A	Physics	Motion In A Plane	Resolution Of Vectors	Easy
15 April_ S1	8	12th	A	Physics	Solids & Semiconductor Devices	Biasing Of Diodes	Easy
15 April_ S1	9	11th	A	Physics	Work Energy & Power	Conservation Of Mechanical Energy	Easy
15 April_ S1	10	12th	A	Physics	Moving Charges & Magnetism	Conversion Of Galvanometer	Medium
15 April_ S1	11	12th	A	Physics	Electromagnetic Waves	Characteristics Of EM Waves	Easy

S1							
15 April_ S1	12	12th	A	Physics	Wave Optics	Diffraction	Easy
15 April_ S1	13	11th	A	Physics	Gravitation	Gravitational Force	Easy
15 April_ S1	14	11th	A	Physics	Thermodynamics	Work Done using Indicator Diagram	Easy
15 April_ S1	15	12th	A	Physics	Alternating Current	Transient Current	Medium
15 April_ S1	16	11th	A	Physics	Oscillations	Velocity and Acceleration in SHM	Easy
15 April_ S1	17	12th	A	Physics	Current Electricity	Resistance & Grouping Of Resistance	Easy
15 April_ S1	18	11th	A	Physics	System Of Particles & Rotational Motion	Radius Of Gyration	Medium
15 April_ S1	19	11th	A	Physics	Waves	Standing Wave in Sonometer Wire	Medium
15 April_ S1	20	11th	A	Physics	Units & Measurements	Dimensional Analysis	Medium
15 April_ S1	21	12th	B	Physics	Electrostatic Potential & Capacitance	Grouping Of capacitors	Easy
15 April_ S1	22	12th	B	Physics	Atoms	Hydrogen Spectrum	Medium
15 April_ S1	23	12th	B	Physics	Current Electricity	Electrical Circuits	Easy
15 April_ S1	24	12th	B	Physics	Ray Optics & Optical Instruments	Minimum Deviation In Prisms	Easy

S1							
15 April_ S1	25	12th	B	Physics	Electric Charges & Fields	Electric Field Due To A Dipole	Easy

## Chemistry

15 April_ S1	31	11th	A	Chemistry	Environmental chemistry	Photochemical smog	Easy
15 April_ S1	32	12th	A	Chemistry	P block elements-II	Group 15- Oxo-acids of phosphorus	Easy
15 April_ S1	33	11th	A	Chemistry	Atomic structure	Bohr model of Hydrogen atom	Easy
15 April_ S1	34	12th	A	Chemistry	Haloalkane and haoarenes	Freidal craft acetylation reaction	Easy
15 April_ S1	35	11th	A	Chemistry	Atomic structure	Bohr model of Hydrogen atom	Easy
15 April_ S1	36	12th	A	Chemistry	Alcohols Phenols and ether	Dehydration	Medium
15 April_ S1	37	12th	A	Chemistry	Amines	Chemical reactions of aniline	Easy
15 April_ S1	38	11th	A	Chemistry	Hydrocarbons	Miscellaneous	Easy
15 April_ S1	39	12th	A	Chemistry	Coordination compounds	Crystal Field theory	Easy
15 April_ S1	40	12th	A	Chemistry	Solid state	Crystal lattice	Easy

15 April_ S1	41	12th	A	Chemistry	Polymers	Monomeric unit of various polymers	Easy
15 April_ S1	42	12th	A	Chemistry	Metallurgy	Calcination	Easy
15 April_ S1	43	11th	A	Chemistry	General Organic chemistry	Electrophilic aromatic substitution	Easy
15 April_ S1	44	11th	A	Chemistry	Some basic concept of Organic chemistry	Purification techniques: Chromatography	Easy
15 April_ S1	45	12th	A	Chemistry	Alcohols Phenols and ether	Hydroboration	Easy
15 April_ S1	46	11th	A	Chemistry	s block elements	important compounds of s block elements	Easy
15 April_ S1	47	11th	A	Chemistry	Ionic equilibrium	Titration- pH calculation	Medium
15 April_ S1	48	11th	A	Chemistry	s block elements	Flame test	Easy
15 April_ S1	49	12th	B	Chemistry	Electrochemistry	Variation of conductivity	Medium
15 April_ S1	50	12th	B	Chemistry	Solution	Relative lowering in vapour pressure	Easy
15 April_ S1	51	11th	B	Chemistry	Redox reactions	Oxidation state	Easy
15 April_ S1	52	11th	B	Chemistry	Atomic structure	Electronic configuration	Easy
15 April_ S1	53	12th	B	Chemistry	Redox reactions	Oxidation state	Easy

15 April_ S1	54	12th	B	Chemistry	Chemical Kinetics	First order reaction- Half life	Easy
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### Mathematics

15 April_ S1	61	12th	A	Mathematics	Probability	Permutations and combination based problem	Easy
15 April_ S1	62	11th	A	Mathematics	Statistics	Variance	Medium
15 April_ S1	63	12th	A	Mathematics	Determinants	Adjoint	Medium
15 April_ S1	64	11th	A	Mathematics	straight line	orthocentre	Medium
15 April_ S1	65	11th	A	Mathematics	Mathematical reasoning	tautology and fallacy	Medium
15 April_ S1	66	11th	A	Mathematics	Permutations and combinations	Permutations	Medium
15 April_ S1	67	12th	A	Mathematics	3 D geometry	Equation of plane	Medium
15 April_ S1	68	12th	A	Mathematics	Application of derivatives	Maxima and minima	Medium
15 April_ S1	69	11th	A	Mathematics	Circle	common tangent	Easy
15 April_ S1	70	12th	A	Mathematics	indefinite integration	substitution	Medium
15 April_ S1	71	11th	A	Mathematics	Sequence and series	mix series	Medium

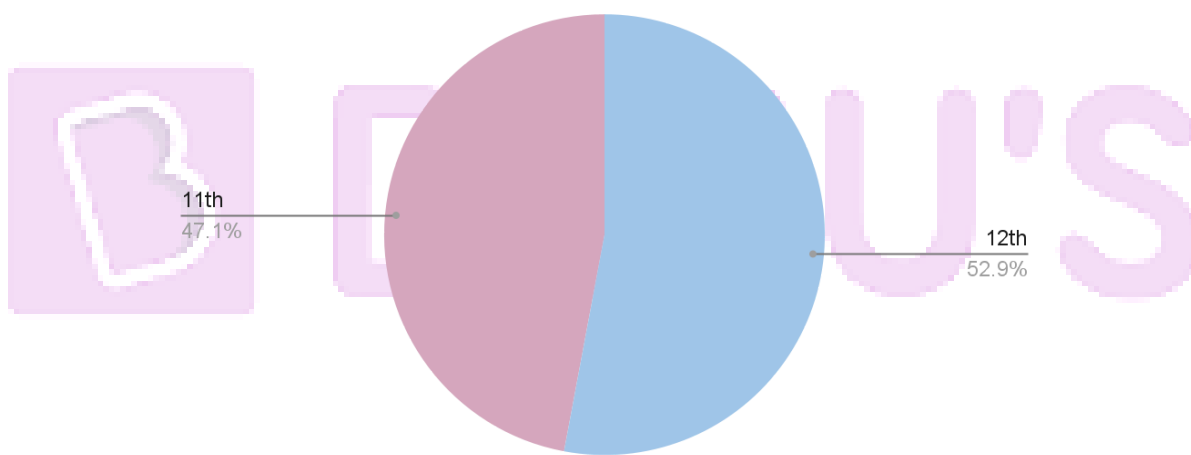
S1							
15 April_ S1	72	11th	B	Mathematics	Binomial Theorem	Remainder problem	Medium
15 April_ S1	73	12th	B	Mathematics	Relations and functions	maximum and minimum function	Medium
15 April_ S1	74	12th	B	Mathematics	Relations and functions	Relations	Medium
15 April_ S1	75	12th	B	Mathematics	Limits continuity and differentiability	Differentiability	Easy
15 April_ S1	76	11th	B	Mathematics	Quadratic equation	Modulus problem	Medium
15 April_ S1	77	12th	B	Mathematics	Relations and functions	Domain	Easy
15 April_ S1	78	11th	B	Mathematics	Permutations and combinations	Permutations	Medium
15 April_ S1	79	11th	B	Mathematics	Area under the curve	Area bounded by two curves	Medium

### Class Wise Distribution Level Analysis

As per our expert faculties, the questions from the **Class 12th syllabus dominated Class 11th syllabus**. Below is the Class wise question distribution table -

Subject	11th		12th	
	No. of Questions	Total Marks	No. of Questions	Total Marks
Physics	11	44	14	56
Chemistry	11	44	13	52
Mathematics	10	40	9	36
<b>Grand Total</b>	<b>32</b>	<b>128</b>	<b>36</b>	<b>144</b>

### Class Wise Distribution Analysis



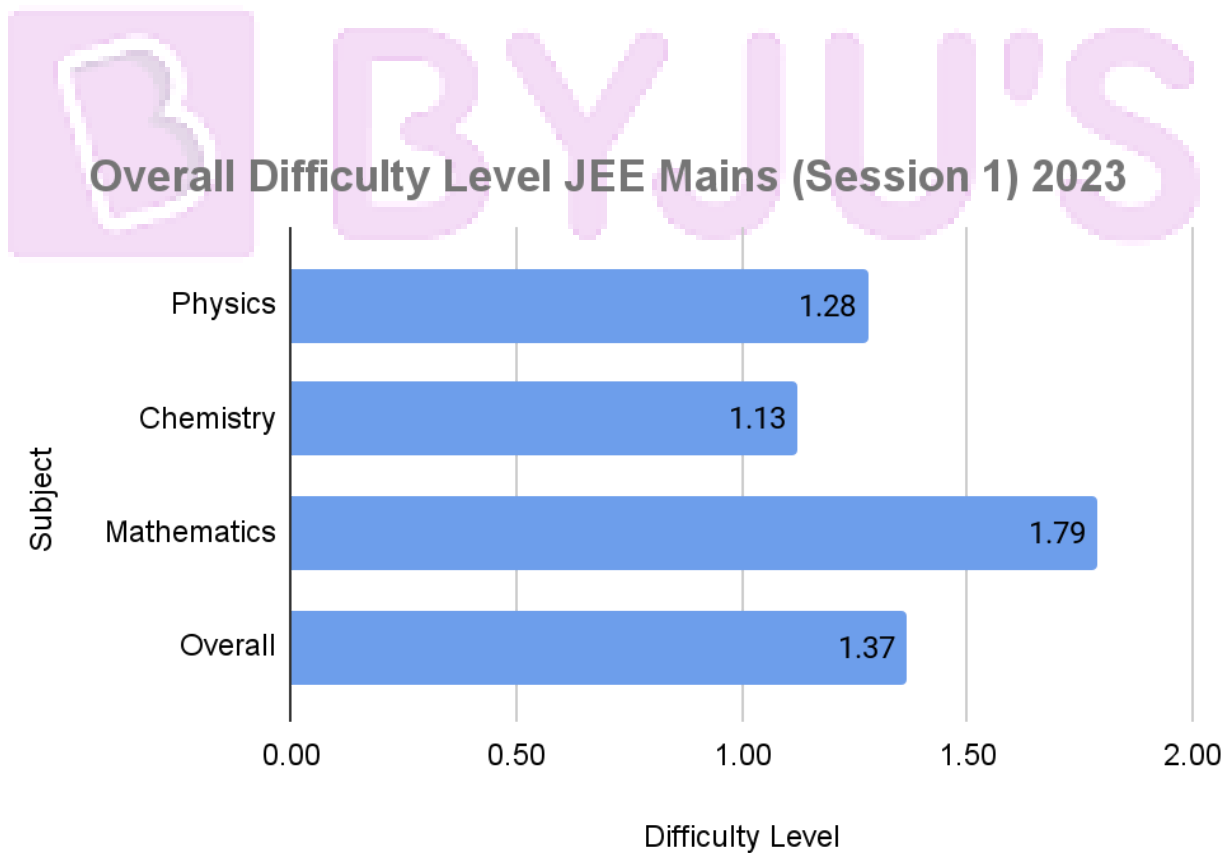
- In Physics, majorly questions were from the Class 12th syllabus.
- In Chemistry, majorly questions were from the Class 12th syllabus.
- In Mathematics, majorly questions were from the Class 11th syllabus.
- Overall the questions from the Class 12th syllabus dominated Class 11th syllabus.

## Overall Difficulty Level Analysis

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

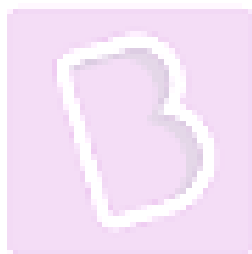
- Easy - 1
- Medium - 2
- Difficult - 3

Subject	Difficulty Level
Physics	1.28
Chemistry	1.13
Mathematics	1.79
Overall	1.37



### **Conclusion**

The overall difficulty of **JEE Main (Session 2) 15th April 2023 - Shift 1** was **easy to moderate**. The order of difficulty in different subjects- as assessed by our experts is Mathematics > Physics > Chemistry.



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