

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

## 10th April 2023 Shift 2 ( 3 pm - 6 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)

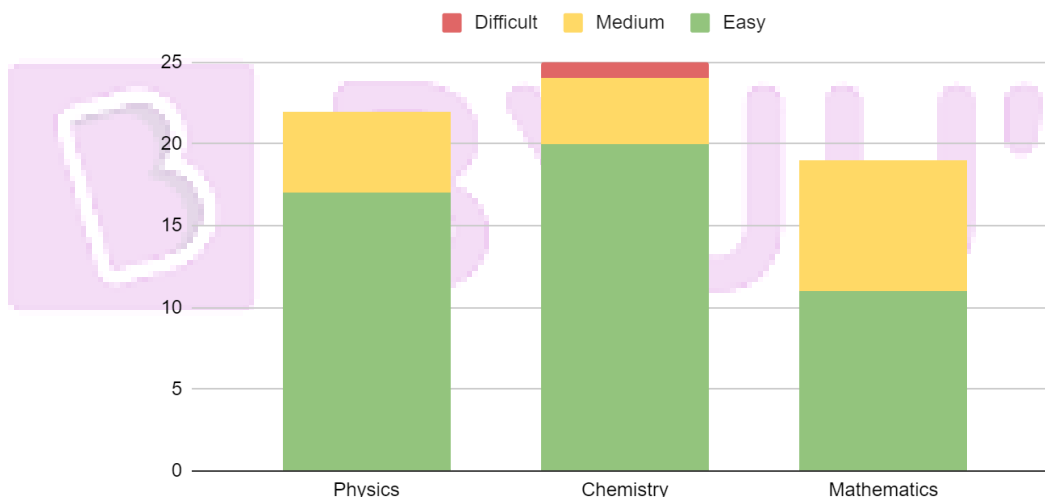
Particulars	Details
Exam Mode	Computer-based examination
Test Duration	Three hours
No. of Subjects	(i)Physics (ii)Chemistry (iii)Mathematics
Type of questions	MCQs: 4 options with only 1 correct option  Numerical Value Questions: Questions whose answers are to be filled in as a numerical value
JEE Mains 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 **65 questions out of 90** i.e., **22** 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	17	68	5	20	0	0	22	88
Chemistry	19	76	4	16	1	4	24	96
Mathematics	7	28	12	48	0	0	19	76
Grand Total	43	172	21	84	1	4	65	260

### Subject Wise Difficulty Level Analysis



- Physics was rated as easy on the difficulty level. It consisted mostly of easy & moderate questions. Questions were evenly distributed among all units and most of the questions were NCERT based.
- Chemistry was rated as easy to moderate on difficulty level. More weightage was given to Inorganic Chemistry compared to Physical Chemistry and Organic Chemistry.
- Mathematics was rated as easy to moderate. Questions were asked from all chapters. Emphasis was on Algebra and Coordinate Geometry.

### **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>
10th April/ Shift 2	1	12th	A	Physics	Solids & Semiconductor Devices	Diode Circuits	Easy
10th April/ Shift 2	2	11th	A	Physics	Motion In A Straight Line	Average Velocity	Easy
10th April/ Shift 2	3	12th	A	Physics	Moving Charges & Magnetism	Application Of Biot Savart's Law	Easy
10th April/ Shift 2	4	12th	A	Physics	Ray Optics & Optical Instruments	Refraction through the Lens	Medium
10th April/ Shift 2	5	12th	A	Physics	Dual Nature Of Matter & Radiation	Photoelectric Effect	Easy
10th April/ Shift 2	6	11th	A	Physics	System Of Particles & Rotational Motion	Rotational Inertia	Easy
10th April/ Shift 2	7	11th	A	Physics	Mechanical Properties Of Solids	Young's Modulus	Easy
10th April/ Shift 2	8	11th	A	Physics	Nuclei	Radioactivity	Easy
10th April/ Shift 2	9	12th	A	Physics	Current Electricity	Drift Speed	Easy
10th April/ Shift 2	10	12th	A	Physics	Electrostatic Potential & Capacitance	Effect of conductor on Capacitance of a Capacitor	Easy

10th April/ Shift 2	11	11th	A	Physics	Magnetism & Matter	Properties Of Diamagnetic Substance	Easy
10th April/ Shift 2	12	12th	A	Physics	Communication System	Bandwidth Of AM Signal	Easy
10th April/ Shift 2	13	12th	A	Physics	Wave Optics	Young's Double Slit Experiment	Easy
10th April/ Shift 2	14	11th	A	Physics	Motion In A Plane	Projectile Motion	Easy
10th April/ Shift 2	15	12th	A	Physics	System Of Particles & Rotational Motion	Torque	Medium
10th April/ Shift 2	16	11th	A	Physics	Gravitation	Satellite Motion	Easy
10th April/ Shift 2	17	11th	A	Physics	Kinetic Theory Of Gases	Internal ENERGY of Mixture Of Gases	Easy
10th April/ Shift 2	18	11th	A	Physics	Gravitation	Variation In Acceleration Due To Gravity	Easy
10th April/ Shift 2	19	12th	A	Physics	Electric Chanres & Fields	Electric Field Due To Infinite Charged Wire	Medium
10th April/ Shift 2	20	11th	A	Physics	Thermodynamics	First Law Of Thermodynamics	Medium
10th April/ Shift 2	21	11th	A	Physics	Work Energy & Power	Power	Easy
10th April/ Shift 2	22	11th	A	Physics	Oscillation	S.H.M.	Medium

## Chemistry

10th April/ Shift 2	31	11th	A	Chemistry	Environmental chemistry	Air pollutants	Easy
10th April/ Shift 2	32	12th	A	Chemistry	Polymers	Condensation polymers	Easy
10th April/ Shift 2	33	12th	A	Chemistry	Solid state	FCC unit cell	Easy
10th April/ Shift 2	34	11th	A	Chemistry	s block elements	Group 1 elements- Metallic character	Easy
10th April/ Shift 2	35	12th	A	Chemistry	Surface Chemistry	Colloids	Easy
10th April/ Shift 2	36	12th	A	Chemistry	Coordination chemistry	Magnetic moment	Easy
10th April/ Shift 2	37	11th	A	Chemistry	States of matter	Internal energy	Medium
10th April/ Shift 2	38	11th	A	Chemistry	Some basic concept of chemistry	Stability of carbocation	Medium
10th April/ Shift 2	39	11th	A	Chemistry	s block elements	Important compounds of s block elements	Easy
10th April/ Shift 2	40	12th	A	Chemistry	Alcohol Phenol and ethers	Acidic strength of alcohol and phenol	Medium
10th April/ Shift 2	41	12th	A	Chemistry	Chemistry in everyday life	Soaps and detergents	Easy
10th April/ Shift 2	42	11th	A	Chemistry	Periodic classification	Electron affinity	Easy

10th April/ Shift 2	43	12th	A	Chemistry	Biomolecules	Test for	Easy
10th April/ Shift 2	44	12th	A	Chemistry	Coordination chemistry	Crystal Field Theory	Difficult
10th April/ Shift 2	45	11th	A	Chemistry	Hydrogen	Isotopes of Hydrogen	Easy
10th April/ Shift 2	46	12th	A	Chemistry	Alcohol Phenol and ethers	Preparation of alcohol	Easy
10th April/ Shift 2	47	12th	B	Chemistry	Coordination chemistry	VSEPR Theory	Easy
10th April/ Shift 2	48	12th	B	Chemistry	P block elements -II	Group 18	Easy
10th April/ Shift 2	49	11th	B	Chemistry	Chemical Bonding	VSEPR Theory	Easy
10th April/ Shift 2	50	11th	B	Chemistry	Redox reactions	Equation balancing	Easy
10th April/ Shift 2	51	11th	B	Chemistry	Ionic equilibrium	Equilibrium constant	Medium
10th April/ Shift 2	52	11th	B	Chemistry	Thermodynamics	Exothermic and endothermic reactions	Easy
10th April/ Shift 2	53	12th	B	Chemistry	Electrochemistry	Molar conductivity	Easy
10th April/ Shift 2	54	12th	B	Chemistry	Chemical Kinetics	Half life	Easy

## Mathematics

10th April/ Shift 2	61	11th	A	Mathematics	Conics Section 2	Circle	Medium
10th April/ Shift 2	62	12th	A	Mathematics	Inverse Trigonometric function	Domain of Inverse trigonometric function	Easy
10th April/ Shift 2	63	11th	B	Mathematics	Permutation and combination	Division and Distributions	Easy
10th April/ Shift 2	64	11th	A	Mathematics	Complex numbers	Algebra of complex number	Easy
10th April/ Shift 2	65	12th	A	Mathematics	Indefinite Integrals	Integration by substitution	Medium
10th April/ Shift 2	66	12th	A	Mathematics	Probability	Binomial distribution	Medium
10th April/ Shift 2	67	12th	A	Mathematics	Method of differentiation	N-L rule	Easy
10th April/ Shift 2	68	11th	A	Mathematics	Conic Section-2	Ellipse	Medium
10th April/ Shift 2	69	12th	A	Mathematics	Application of Derivatives	Tangent and Normal	Easy
10th April/ Shift 2	70	11th	A	Mathematics	Sequence and Series	Arithmetic geometric progression	Medium
10th April/ Shift 2	71	11th	A	Mathematics	Mathematical reasoning	Mathematical reasoning	Easy
10th April/ Shift 2	72	11th	B	Mathematics	Permutation and combination	Permutations	Medium

10th April/ Shift 2	73	11th	B	Mathematics	Sequences and Series	Methods of differences	Medium
10th April/ Shift 2	74	12th	B	Mathematics	Vector Algebra	Vector Addition	Medium
10th April/ Shift 2	75	11th	B	Mathematics	Trigonometry	Trigonometric Equations	Medium
10th April/ Shift 2	76	11th	B	Mathematics	Binomial Theorem	Bino-binomial expansion	Medium
10th April/ Shift 2	77	11th	B	Mathematics	Binomial Theorem	Divisibility	Medium
10th April/ Shift 2	78	12th	B	Mathematics	Application of Integrals	Area under the curve	Medium
10th April/ Shift 2	79	12th	B	Mathematics	3D Geometry	Image of a point in a plane	Easy

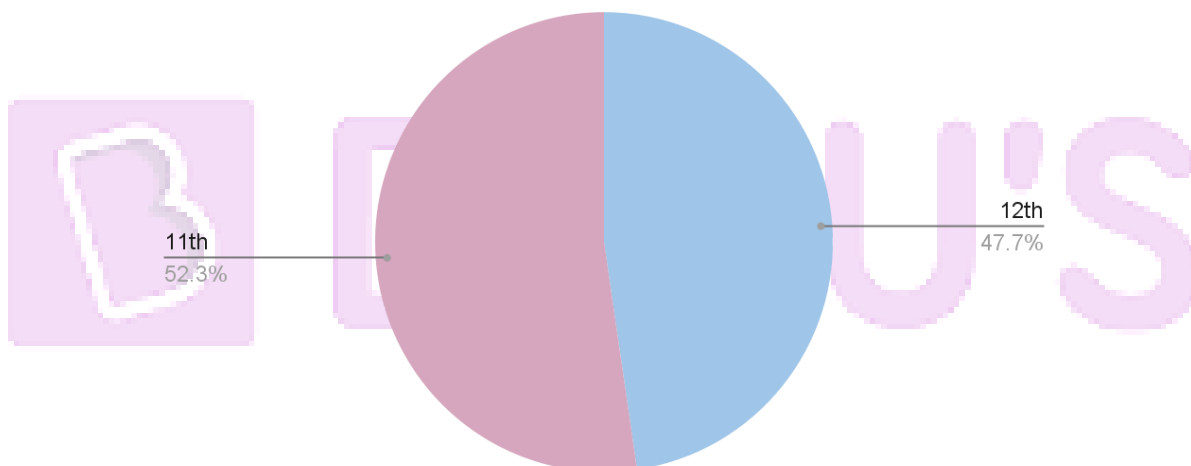


### Class Wise Distribution Level Analysis

As per our expert faculties, the questions from the **Class 11th 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	12	48	10	40
Chemistry	11	44	13	52
Mathematics	11	44	8	32
Grand Total	34	136	31	124

### Class Wise Distribution Analysis



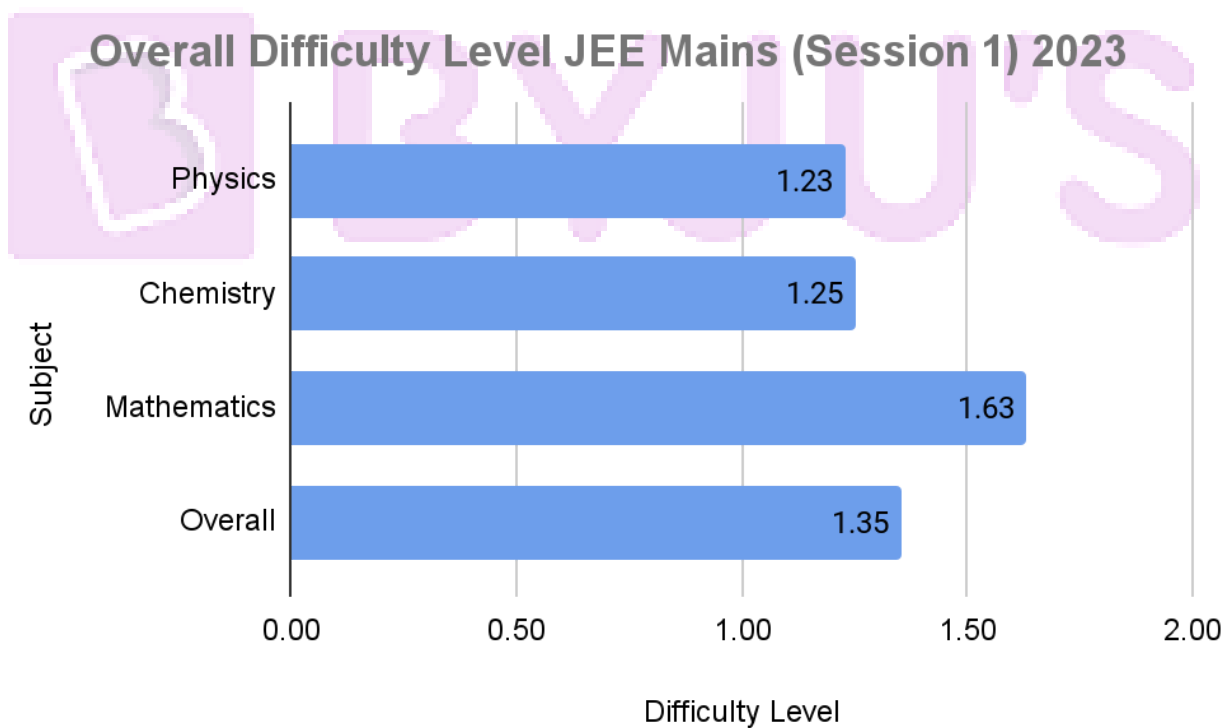
- In Physics, questions had an approximately equal weightage from Class 11th & Class 12th syllabus.
- In Chemistry, questions had an approximately equal weightage from Class 11th & Class 12th syllabus.
- In Mathematics, majorly questions were from the Class 11th syllabus.
- Overall the questions distribution was dominated by 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

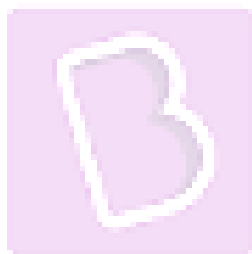
Subject	Difficulty Level
Physics	1.23
Chemistry	1.25
Mathematics	1.63
Overall	1.35



### **Conclusion**

The overall difficulty of **JEE Main (Session 2) 10th April 2023 - Shift 2** was **easy to moderate. Mathematics was the most difficult subject to attempt out of all three subjects.**

The order of difficulty in different subjects- as assessed by our experts is Mathematics > Chemistry > Physics.



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