

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

8th 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 ≤ 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.**

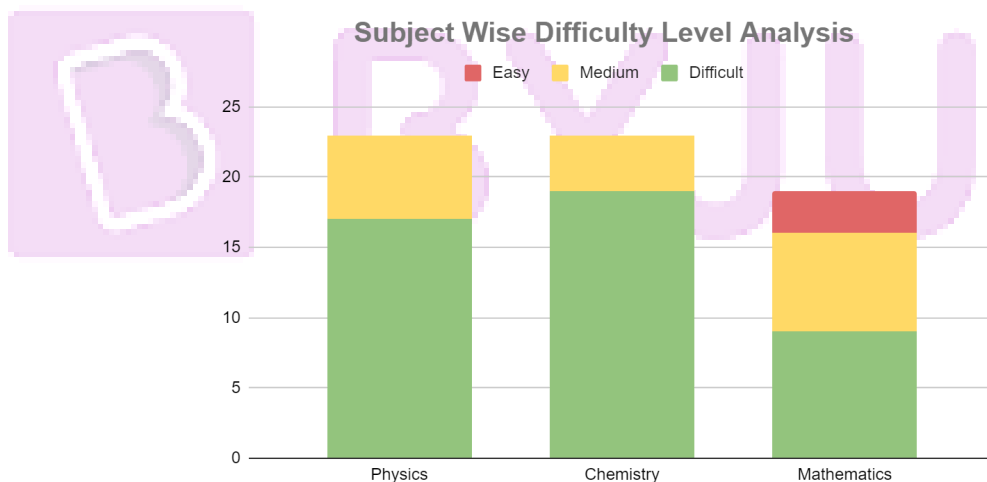
JEE Main Exam Pattern 2023: Paper 1 (B.E/B.Tech)

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 Total: 75 Questions (25 questions in each subject)	Mathematics: 25 (20+10) 20 Questions were compulsory MCQ Based & 10 Questions were answers as a numerical value. Out of these 10 questions, 5 questions are compulsory. Physics: 25 (20+10) 20 Questions were compulsory MCQ Based & 10 Questions were answers as a numerical value. Out of these 10 questions, 5 questions are compulsory. Chemistry: 25 (20+10) 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	300 Marks
JEE Main Marking Scheme	MCQ's: Four marks will be awarded for each correct answer and there will be a negative marking of one mark for each wrong answer. Questions with numerical value answers: 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., **23** questions in Physics, **23** 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	6	24	0	0	23	92
Chemistry	19	76	4	16	0	0	23	92
Mathematics	9	36	7	28	3	12	19	76
Grand Total	45	180	17	68	3	12	65	260



- Physics was of moderate difficulty. It consisted mostly of easy & moderate questions. Questions were evenly distributed among all units and most of the questions were NCERT based.
- Chemistry had a mix of moderate and easy questions. The chemistry section consisted mostly of easy questions. Questions from Physical Chemistry were more in comparison to Organic Chemistry & Inorganic Chemistry.
- Mathematics was rated as moderate on the difficulty level. Mixed concept questions were asked.

Question Wise Distribution Analysis

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

Physics

Date & Shift	Question No	Class	Section	Subject	Chapter Name	Topic Name	Difficulty Level
8th April/ Shift 2	1	12th	A	Physics	Current Electricity	Grouping Of Resistance	Easy
8th April/ Shift 2	2	12th	A	Physics	Electromagnetic Induction	Motional EMF	Easy
8th April/ Shift 2	3	11th	A	Physics	Gravitation	Variation In Acceleration Due To Gravity	Easy
8th April/ Shift 2	4	12th	A	Physics	Electrostatic Potential & Capacitance	Electric Potential	Easy
8th April/ Shift 2	5	11th	A	Physics	Units & Measurements	Dimensional Analysis	Medium
8th April/ Shift 2	6	12th	A	Physics	Electromagnetic Waves	Properties Of EM Waves	Easy
8th April/ Shift 2	7	11th	A	Physics	Thermodynamics	Carnot's Engine	Easy
8th April/ Shift 2	8	12th	A	Physics	Magnetism & Matter	Properties Of Ferromagnetic Materials	Easy
8th April/ Shift 2	9	11th	A	Physics	Gravitation	Satellite Motion	Easy
8th April/ Shift 2	10	11th	A	Physics	Motion In A Straight Line	Displacement Time, and Velocity Time Relations	Easy
8th April/ Shift 2	11	11th	A	Physics	Motion In A Straight Plane	Projectile Motion	Easy

Shift 2							
8th April/ Shift 2	12	12th	A	Physics	Communication Systems	Power Radiated By Antenna	Easy
8th April/ Shift 2	13	12th	A	Physics	Nuclei	Radioactivity	Medium
8th April/ Shift 2	14	12th	A	Physics	Electrostatic Potential & Capacitance	Energy Stored In Capacitor	Easy
8th April/ Shift 2	15	11th	A	Physics	Oscillations	Phasor Representation Of SHM	Medium
8th April/ Shift 2	16	12th	A	Physics	Atoms	Mosley's Law	Easy
8th April/ Shift 2	17	11th	B	Physics	Laws Of Motion	Impulse Momentum Theorem	Easy
8th April/ Shift 2	18	12th	B	Physics	Wave Optics	Young's Double Slit Experiment	Easy
8th April/ Shift 2	19	11th	B	Physics	Laws Of Motion	Friction	Easy
8th April/ Shift 2	20	12th	B	Physics	Moving Charges & Magnetism	Application Of Biot Savart's Law	Medium
8th April/ Shift 2	21	12th	B	Physics	Ray Optics & Optical Instruments	Refraction At Spherical Surfaces	Medium
8th April/ Shift 2	22	12th	B	Physics	Atoms	Hydrogen Spectrum	Medium
8th April/ Shift 2	23	12th	B	Physics	Alternating Current	Queslity Factor	Easy

Chemistry

8th April/ Shift 2	31	11th	A	Chemistry	Hydrogen	Hydrogen peroxide	Easy
8th April/ Shift 2	32	11th	A	Chemistry	Some basic concept of chemistry	IUPAC Nomenclature	Easy
8th April/ Shift 2	33	11th	A	Chemistry	States of matter	Real gas equation	Medium
8th April/ Shift 2	34	12th	A	Chemistry	Aldehyde ketones and carboxylic acid	Acidic strength	Easy
8th April/ Shift 2	35	12th	A	Chemistry	Amines	Reagents	Easy
8th April/ Shift 2	36	11th	A	Chemistry	Periodic classification	Henry Mosley's law	Easy
8th April/ Shift 2	37	12th	A	Chemistry	Coordination compounds	VSEPR Theory	Easy
8th April/ Shift 2	38	12th	A	Chemistry	Chemical Kinetics	Activation energy	Easy
8th April/ Shift 2	39	12th	A	Chemistry	Coordination compounds	VSEPR Theory	Easy
8th April/ Shift 2	40	12th	A	Chemistry	Haloalkane and haloarenes	Nucleophilic substitution	Easy
8th April/ Shift 2	41	11th	A	Chemistry	Redox reaction	Titrations	Easy
8th April/ Shift 2	42	11th	A	Chemistry	Atomic structure	Photoelectric effect	Easy
8th	43	12th	A	Chemistry	Aldehyde ketones	Halogenation	Medium

April/ Shift 2					and carboxylic acid		
8th April/ Shift 2	44	12th	A	Chemistry	Metallurgy	Extraction aluminum	Easy
8th April/ Shift 2	45	12th	A	Chemistry	Biomolecules	Amino acids	Easy
8th April/ Shift 2	46	11th	B	Chemistry	s block elements	Important compounds of s block elements	Easy
8th April/ Shift 2	47	12th	B	Chemistry	Solutions	Colligative properties	Medium
8th April/ Shift 2	48	11th	B	Chemistry	Ionic equilibrium	Solubility product	Easy
8th April/ Shift 2	49	12th	B	Chemistry	Surface Chemistry	Coagulation power	Medium
8th April/ Shift 2	50	11th	B	Chemistry	Atomic structure	Nodes	Easy
8th April/ Shift 2	51	12th	B	Chemistry	P block elements-II	Group 18 - Xenon compounds	Easy
8th April/ Shift 2	52	12th	B	Chemistry	P block elements-II	Group 15- Oxoacids of Phosphorous	Easy
8th April/ Shift 2	53	12th	B	Chemistry	Coordination compounds	Oxidation state	Easy

Mathematics

8th April/ Shift 2	61	11th	A	Mathematics	Binomial Theorem	General Terms	Easy
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8th April/ Shift 2	62	12th	A	Mathematics	Relations and functions	Relations	Easy
8th April/ Shift 2	63	11th	A	Mathematics	Permutations and Combinations	Permutation	Easy
8th April/ Shift 2	64	11th	A	Mathematics	Sequence and Series	Method of differences	Difficult
8th April/ Shift 2	65	11th	A	Mathematics	Limits	Standard Limits	Medium
8th April/ Shift 2	66	11th	A	Mathematics	Complex numbers	Algebra of Complex numbers	Easy
8th April/ Shift 2	67	11th	A	Mathematics	Mathematical Reasoning	Distributive law	Easy
8th April/ Shift 2	68	11th	A	Mathematics	Circle	Tangents	Easy
8th April/ Shift 2	69	11th	A	Mathematics	Conics Section 2	Parabola focus and direction	Medium
8th April/ Shift 2	70	11th	A	Mathematics	Permutations and Combinations	Permutation	Medium
8th April/ Shift 2	71	11th	A	Mathematics	Conics	Parabola	Easy
8th April/ Shift 2	72	12th	A	Mathematics	Probability	Probability distribution of Random variable	Easy
8th April/ Shift 2	73	12th	A	Mathematics	Quantity and differentiability	Differentiability	Medium
8th April/ Shift 2	74	12th	A	Mathematics	Integration	Substitution	Medium

8th April/ Shift 2	75	11th	A	Mathematics	Statistics	Variance	Difficult
8th April/ Shift 2	76	11th	B	Mathematics	Straight lines	Area of Polygon	Easy
8th April/ Shift 2	77	12th	B	Mathematics	Definite Integrals	Properties of Definite Integrals	Medium
8th April/ Shift 2	78	12th	B	Mathematics	Differential Equations	Linear Differential equation	Medium
8th April/ Shift 2	79	11th	B	Mathematics	Quadratic equation	Roots of equation	Difficult



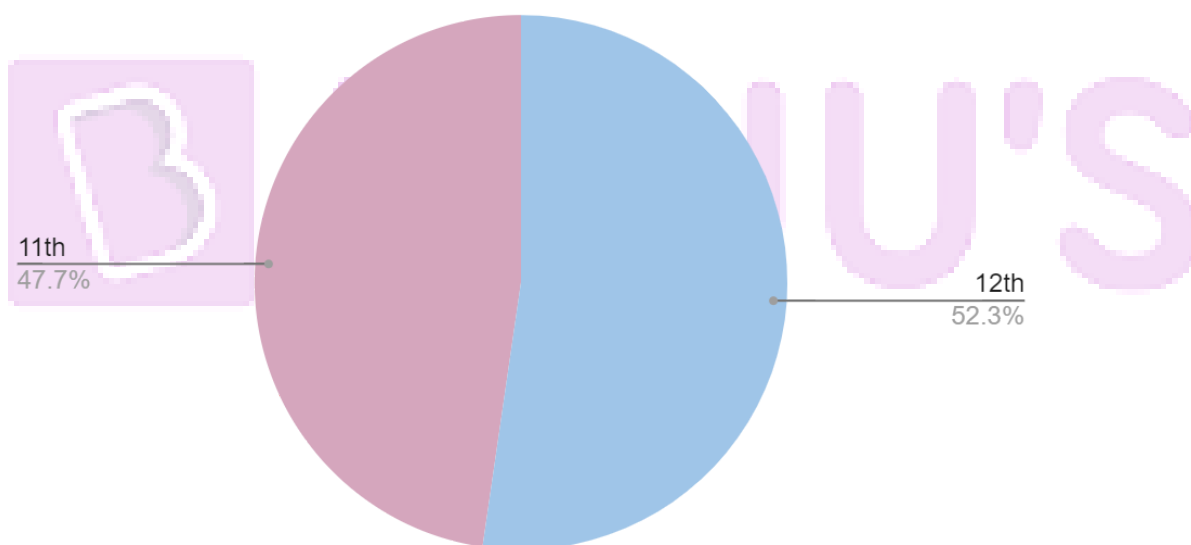
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Class Wise Distribution Level Analysis

As per our expert faculties the questions from **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	9	36	14	56
Chemistry	9	36	14	56
Mathematics	13	52	6	24
Grand Total	31	124	34	136

Class Wise Distribution Analysis



Class Wise Distribution Level

- In Physics, questions were majorly asked from 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 distribution was dominated by Class 12th syllabus.

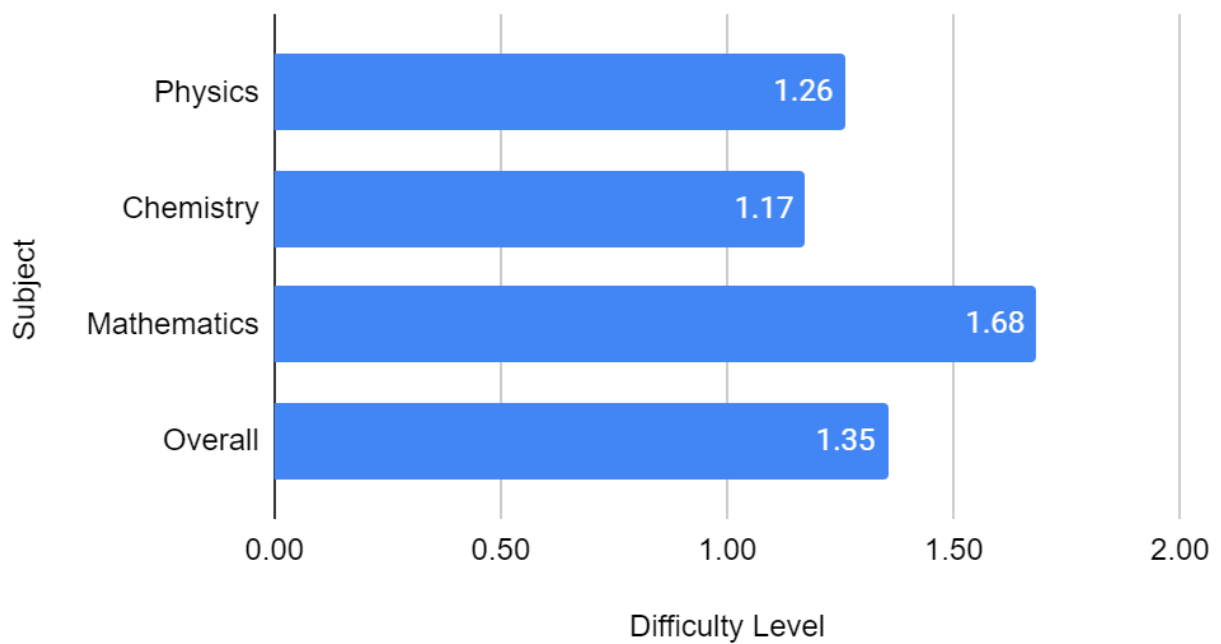
Overall Difficulty Level Analysis

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	1.26
Chemistry	1.17
Mathematics	1.68
Overall	1.35

Difficulty Level vs. Subject



Conclusion

The overall difficulty of **JEE Main (Session 2) 8th April 2023 - Shift 2** was **moderate to difficult. 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 > Physics > Chemistry.

