

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

13th 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 ≤ 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.**

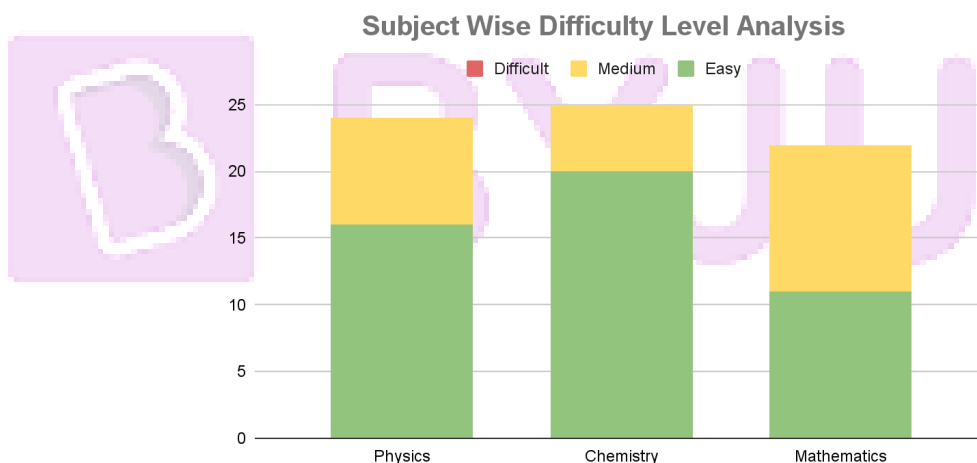
JEE Main Exam Pattern 2023: Paper 1 (B.E/B.Tech)

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 **71 questions out of 90** i.e. 24 questions in Physics, 25 questions in Chemistry and 22 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	16	64	8	32	0	0	24	96
Chemistry	20	80	5	20	0	0	25	100
Mathematics	11	44	11	44	0	0	22	88
Grand Total	47	188	24	96	0	0	71	284



- 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 out of the all. 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

Date & Shift	Question No	Class	Section	Subject	Chapter Name	Topic Name	Difficulty Level
13th April Shift 1	1	12th	A	Physics	Communication System	Range Of Transmission	Easy
13th April Shift 1	2	11th	A	Physics	Oscillations	Energy In SMH	Easy
13th April Shift 1	3	12th	A	Physics	Electric Charge & Fields	Torque on Dipole In External Electric Field	Easy
13th April Shift 1	4	11th	A	Physics	Work Energy & Power	Relation Between Kinetic Energy & Linear Momentum	Easy
13th April Shift 1	5	11th	A	Physics	System Of Particles & Rotational Motion	Center Of Mass	Easy
13th April Shift 1	6	12th	A	Physics	Dual Nature Of Matter & Radiations	Relation Between Work Function & Threshold Wavelength	Easy
13th April Shift 1	7	12th	A	Physics	Ray Optics & Optical Instruments	Refraction Of Light	Easy
13th April Shift 1	8	12th	A	Physics	Current Electricity	Electrical Power	Medium
13th April Shift 1	9	11th	A	Physics	Thermodynamics	Polytropic Process	Medium
13th April Shift 1	10	12th	A	Physics	Nuclei	Q Value Of A Nuclear Reaction	Easy

13th April Shift 1	11	12th	A	Physics	Atoms	Bohr's Theory	Easy
13th April Shift 1	12	12th	A	Physics	Electric Charge & Fields	Electric Field Due to Infinite Sheet	Medium
13th April Shift 1	13	12th	A	Physics	Moving Charges & Magnetism	Magnetic Field	Easy
13th April Shift 1	14	12th	A	Physics	Ray Optics & Optical Instruments	Real & Apparent Depths	Easy
13th April Shift 1	15	11th	A	Physics	Motion In A Plane	Uniform Circular Motion	Easy
13th April Shift 1	16	12th	A	Physics	Solids & Semiconductor Devices	Logic Gate	Medium
13th April Shift 1	17	11th	A	Physics	System Of Particles & Rotational Motion	Rolling Motion	Easy
13th April Shift 1	18	12th	A	Physics	Ray Optics & Optical Instruments	Plane Mirror	Easy
13th April Shift 1	19	11th	B	Physics	Mechanical Properties Of Fluids	Equation Of Continuity	Easy
13th April Shift 1	20	11th	B	Physics	Motion In A Straight Line	Relative Speed	Medium
13th April Shift 1	21	12th	B	Physics	Current Electricity	Electrical power	Medium
13th April Shift 1	22	11th	B	Physics	Oscillation	Kinetic Energy Of Particle In SHM	Medium
13th April Shift 1	23	11th	B	Physics	System Of Particles & Rotational Motion	Rolling Motion	Medium

13th April Shift 1	24	11th	B	Physics	Units & Measurements	Error Analysis	Easy
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Chemistry

13th April Shift 1	31	11th	A	Chemistry	Environmental chemistry	Ozone layer	Medium
13th April Shift 1	32	11th	A	Chemistry	Chemical Bonding	Molecular Orbital Theory	Easy
13th April Shift 1	33	11th	A	Chemistry	Surface Chemistry	Lyophilic and Lyophobic sols	Easy
13th April Shift 1	34	11th	A	Chemistry	Some basic concept of organic chemistry	Isomerisation	Easy
13th April Shift 1	35	12th	A	Chemistry	Metallurgy	Concentration of ores	Easy
13th April Shift 1	36	12th	A	Chemistry	Alcohol Phenol and ether	Dehydration	Medium
13th April Shift 1	37	12th	A	Chemistry	d and f block elements	Lanthanoid contraction	Easy
13th April Shift 1	38	11th	A	Chemistry	Chemical Bonding	VSEPR Theory	Easy
13th April Shift 1	39	11th	A	Chemistry	Some basic concept of organic chemistry	Aromaticity	Easy
13th April Shift 1	40	12th	A	Chemistry	Aldehyde Ketones and carboxylic acid	Amides	Medium
13th April Shift 1	41	11th	A	Chemistry	P block elements-I	Group 13 - Boron Family	Easy

13th April Shift 1	42	12th	A	Chemistry	Polymers	Classification of polymers	Easy
13th April Shift 1	43	11th	A	Chemistry	s block elements	Chemical properties of alkaline earth metals	Easy
13th April Shift 1	44	11th	A	Chemistry	Environmental chemistry	Atmosphere	Easy
13th April Shift 1	45	11th	A	Chemistry	Atomic structure	Bohr model of Hydrogen atom	Easy
13th April Shift 1	46	11th	A	Chemistry	Hydrogen	Hardness of water	Easy
13th April Shift 1	47	12th	A	Chemistry	Aldehyde Ketones and carboxylic acid	Nucleophilic addition reaction	Medium
13th April Shift 1	48	12th	A	Chemistry	Haloalkanes and haloarenes	SN1 and SN2 mechanism	Medium
13th April Shift 1	49	12th	A	Chemistry	Alcohol Phenol and ether	Chemical reactions	Easy
13th April Shift 1	50	11th	B	Chemistry	Enthalpy change	Thermodynamics	Easy
13th April Shift 1	51	11th	B	Chemistry	Atomic structure	Bohr model of Hydrogen atom	Easy
13th April Shift 1	52	11th	B	Chemistry	Some basic concept of organic chemistry	Estimation of Carbon-Quantitative analysis	Easy
13th April Shift 1	53	12th	B	Chemistry	Chemical Kinetics	Half life period	Easy
13th April Shift 1	54	11th	B	Chemistry	States of Matter	Kinetic theory of gases	Easy

13th April Shift 1	55	12th	B	Chemistry	Solution	Osmotic pressure	Easy
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Mathematics

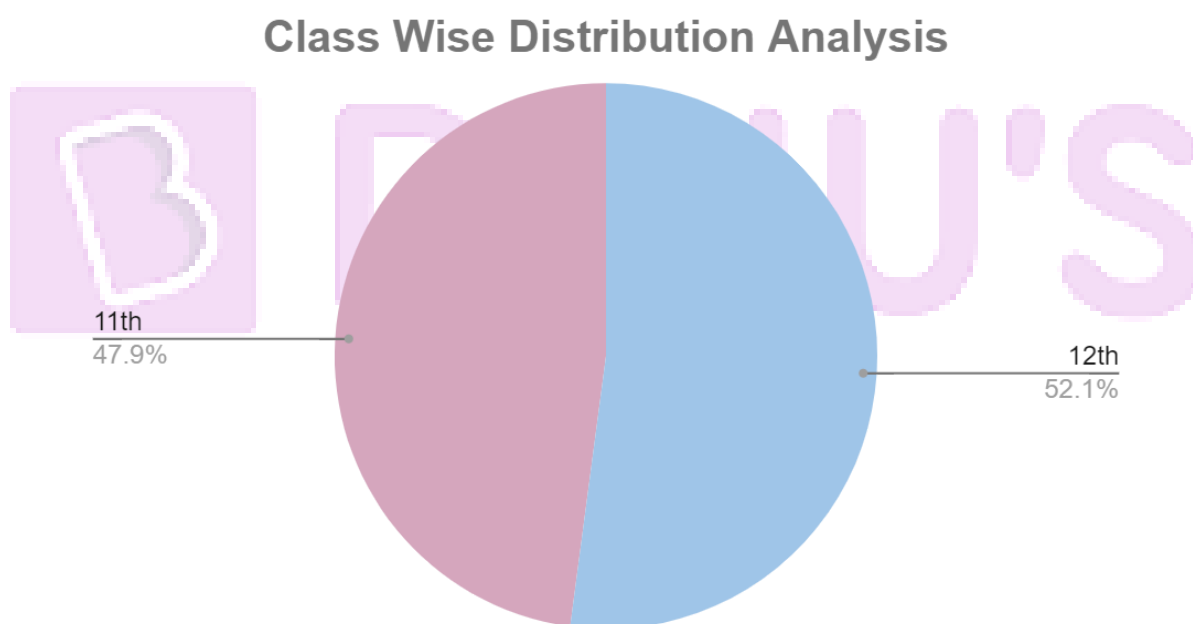
13th April Shift 1	61	11th	A	Mathematics	Sequence and series	Miscellaneous sequence	Medium
13th April Shift 1	62	11th	A	Mathematics	Permutations and combinations	Permutations	Medium
13th April Shift 1	63	12th	A	Mathematics	Differential equation	Variable seperable differential equation	Easy
13th April Shift 1	64	12th	A	Mathematics	Relation and functions	Compositions of functions	Easy
13th April Shift 1	65	12th	A	Mathematics	Relation and functions	Functional equations	Easy
13th April Shift 1	66	12th	A	Mathematics	Application of integrals	Area Bounded by two curves	Medium
13th April Shift 1	67	12th	A	Mathematics	Mathematical Reasoning	conditional statement	Medium
13th April Shift 1	68	12th	A	Mathematics	Applications of derivatives	Maxima and minima	Medium
13th April Shift 1	69	12th	A	Mathematics	Vector algebra	Vector equations	Easy
13th April Shift 1	70	12th	A	Mathematics	Definite integrals	Definite integral as a limit of sum	Medium
13th April Shift 1	71	12th	A	Mathematics	Inverse trigonometry functions	Sum and difference of inverse trigonometric functions	Medium

13th April Shift 1	72	12th	A	Mathematics	Differential equation	Variable seperable	Easy
13th April Shift 1	73	12th	A	Mathematics	Definite integrals	Partial Fraction	Medium
13th April Shift 1	74	12th	A	Mathematics	3 D geometry	family of plane	Medium
13th April Shift 1	75	11th	A	Mathematics	Conics section 2	Parabola	Medium
13th April Shift 1	76	11th	B	Mathematics	Binomial Theorem	General terms in Binomial exp	Medium
13th April Shift 1	77	12th	B	Mathematics	Matrices	Symmetric matrices	Easy
13th April Shift 1	78	12th	B	Mathematics	Continuity and differentiability	Determination of function	Easy
13th April Shift 1	79	11th	B	Mathematics	Permutations and combinations	Rule of multiplications	Easy
13th April Shift 1	80	11th	B	Mathematics	Binomial Theorem	Remainder problem	Easy
13th April Shift 1	81	11th	B	Mathematics	Sequence and series	Arithmetic progression	Easy
13th April Shift 1	82	11th	B	Mathematics	Statistics	Derivations	Easy

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	13	52
Chemistry	15	60	10	40
Mathematics	8	32	14	56
Grand Total	34	136	37	148



- In Physics, questions from Class 11th & Class 12th syllabus were approximately of the same weightage.
- In Chemistry, majorly questions were from the Class 11th syllabus.
- In Mathematics, majorly questions were from the Class 12th syllabus.
- Overall the questions from Class 12th syllabus dominated the paper.

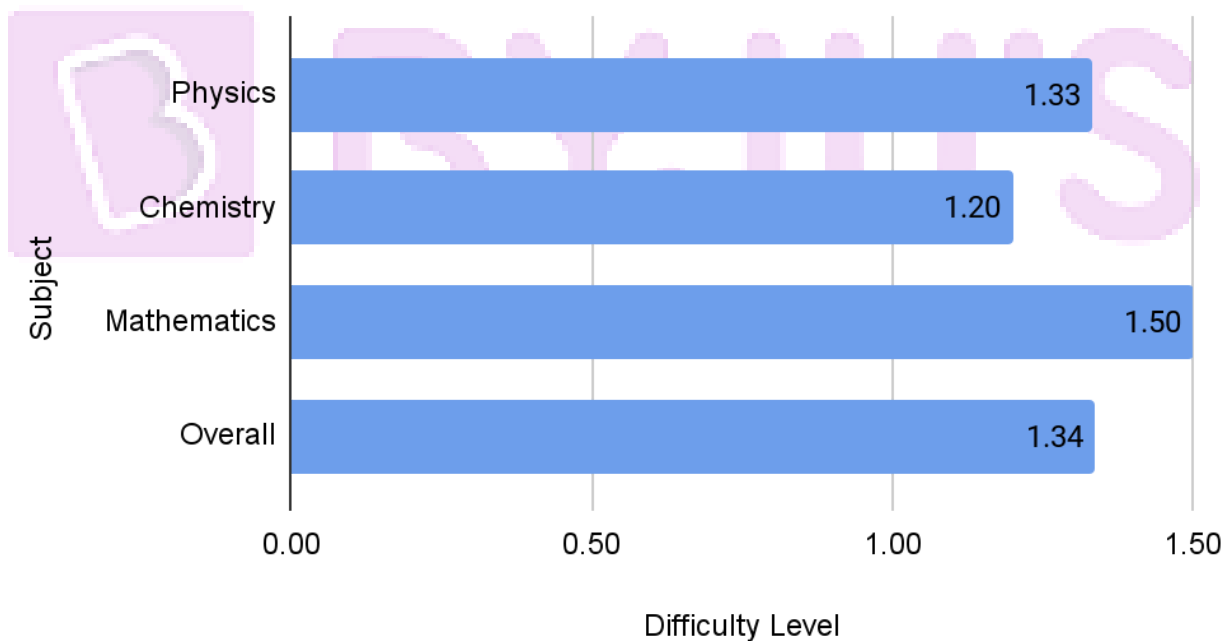
Overall Difficulty Level Analysis

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	1.33
Chemistry	1.20
Mathematics	1.50
Overall	1.34

Overall Difficulty Level JEE Mains (Session 1) 2023



Conclusion

The overall difficulty of **JEE Main (Session 2) 13th April 2023 - Shift 1** was **easy to moderate**. The order of difficulty in different subjects- as assessed by our experts is Mathematics > Physics > Chemistry.

