

In-Depth Analysis - JEE Mains B.Tech Shift 1 (9:00 p.m to 12:00 p.m) (Memory-Based)

Disclaimer: Students had to answer only 75 Questions (300 marks) in the exam, But the Analysis below pertains to all the 90 Questions (360 marks)

JEE Mains B.Tech was held in online mode. It had 3 subjects which were divided into 6 sections which were Physics (Section - A & B), Chemistry (Section - A & B) and Mathematics (Section - A & B).

The 6 sections in this examination were divided in the following manner -

Subject	Section	No. of questions asked	No. of questions to be attempted	Total Marks
Physics (MCQ)	A (1)	20	20	80
Physics (Single Answer Type Questions)	B (2)	10	5	40
Chemistry (MCQ)	A (3)	20	20	80
Chemistry (Single Answer Type Questions)	B (4)	10	5	40
Mathematics (MCQ)	A (5)	20	20	80
Mathematics (Single Answer Type Questions)	B (6)	10	5	40
Total	6	90	75	360

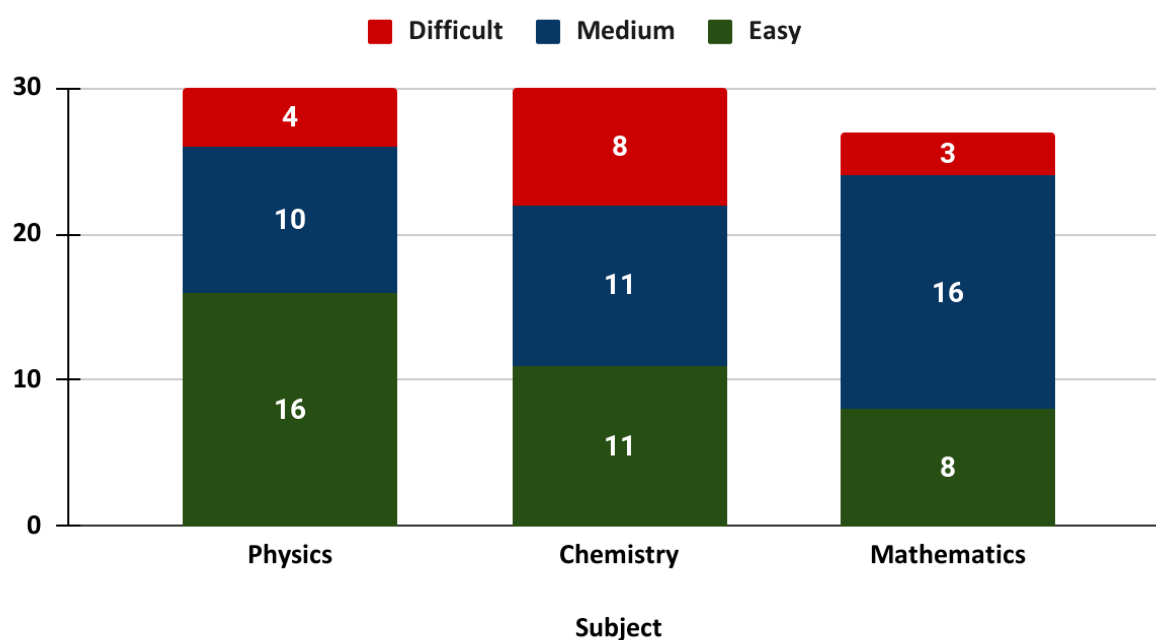
- Section A (1), A (3) & A (5) was MCQ (Multiple Choice Questions), each question had 4 marks, students will be awarded 4 marks for the correct answer and -1 mark will be awarded for the incorrect answer.
- Section B (2), B (4) & B (6) was a single answer type questions, each question had 4 marks students will be awarded 4 marks for the correct answer and 0 marks will be awarded for the incorrect answer.

Subject Wise Analysis

Although it is the analysis of memory-based questions, our experts figured out 86 questions out of 90 questions i.e, **30** questions in Physics, **30** questions in Chemistry and **27** 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	10	40	4	16	30	120
Chemistry	11	44	11	44	8	32	30	120
Mathematics	8	32	16	64	3	12	27	108
Grand Total	35	140	37	148	15	60	87	348

Subject Wise Difficulty Level



- Most of the questions from the Physics were either easy or of moderate difficulty.
- Most of the questions from Chemistry were easy to moderate & few were difficult. But Chemistry had the most number of difficult questions.
- Most of the questions from Mathematics were easy to moderate.

Physics (Section 1 & 2)

Physics was easy compared to Chemistry & Maths. Physics had 16 easy questions and 10 medium type questions. Just 4 questions were of the difficult category. Following is the question distribution table as per Class, Chapter, and Topic & Difficulty

Question No	Class	Chapter Name	Topic Name	Difficulty Level
1	12th	Alternating Current	Alternating Current and EMF	Easy
2	11th	Motion In A Straight Line	Kinematic Equations For Uniformly Accelerated Motion	Medium

3	12th	Current Electricity	Cells In Series and Parallel	Medium
4	11th	Gravitation	Acceleration Due To Gravity Upon The Earth's Surface	Easy
5	11th	Gravitation	Acceleration Due To Gravity Upon The Earth's Surface	Easy
6	12th	Ray Optics and Optical Instruments	Thin Lenses	Difficult
7	11th	Work, Energy and Power	The Conservation of Mechanical Energy	Easy
8	12th	Electric Charges and Fields	Electric Field	Easy
9	11th	Motion In A Plane	Projectile Motion	Easy
10	11th	Mechanical Properties of Fluids	Surface Tension	Medium
11	12th	Dual Nature of Radiation and Matter	Photoelectric Effect	Easy
12	12th	Dual Nature of Radiation and Matter	Photoelectric Effect	Medium
13	11th	Thermodynamics	Heat Engines	Medium
14	11th	Motion In A Plane	Projectile On Inclined Plane	Easy
15	11th	Laws of Motion	Friction	Difficult
16	11th	Work, Energy and Power	The Work-Energy Theorem For A Variable Force	Difficult
17	11th	Mechanical Properties of Solids	Elastic Moduli	Easy
18	12th	Moving Charges and Magnetism	Magnetic Field Due To Various Current Carrying Conductors	Easy
19	11th	Thermal Properties of Matter	Heat Transfer	Easy
20	11th	Work, Energy and Power	Work	Easy
21	11th	Waves	The Principle of Superposition of Waves	Medium
22	12th	Ray Optics and Optical Instruments	Thin Lenses	Medium
23	12th	Electric Charges and Fields	Electric Field	Easy
24	12th	Alternating Current	Alternating Current and EMF	Medium
25	12th	Electrostatic Potential and Capacitance	Relation Between Electric Field and Potential	Medium
26	12th	Wave Optics	Diffraction	Difficult
27	12th	Moving Charges and Magnetism	Magnetic Force	Easy
28	12th	Nuclei	Mass-Energy and Nuclear Binding Energy	Medium
29	12th	Current Electricity	Potentiometer	Easy
30	11th	System of Particles and Rotational Motion	Equilibrium of A Rigid Body	Easy

Chemistry (Section 3 & 4)

Chemistry was moderate to difficult level questions. Chemistry had the most number of difficult questions i.e, 8. This made Chemistry more difficult than Physics & Mathematics. Chemistry had 11 medium and 11 easy questions. Following is the question distribution table as per Class, Chapter, Topic,& Difficulty -

Question No	Class	Chapter Name	Topic Name	Difficulty Level
31	12th	The P-Block Elements	Dinitrogen	Easy
32	11th	Organic Chemistry Some Basic Principles and Techniques	Electron Displacements In Covalent Bonds	Medium
33	12th	General Principles and Processes of Isolation of Elements	Important Ores and Minerals	Easy
34	11th	The P-Block Elements	Boron Family	Medium
35	11th	Hydrocarbons	Alkenes	Difficult
36	12th	Polymers	Classification of Polymers	Easy
37	12th	Aldehydes, Ketones and Carboxylic Acids	Physical Properties of Aldehydes and Ketones	Difficult
38	12th	The D and F-Block Elements	General Properties of The Transition Elements (D-Block)	Easy
39	12th	The P-Block Elements	Group 15 Elements	Easy
40	11th	The S-Block Elements	General Characteristics of The Compounds of The Alkali Metals	Medium
41	12th	Chemical Kinetics and Nuclear Chemistry	Activation Energy	Difficult
42	11th	Environmental Chemistry	Atmospheric Pollution	Easy
43	12th	Biomolecules	Vitamins	Medium
44	12th	Aldehydes, Ketones and Carboxylic Acids	Chemical Reactions of Aldehydes and Ketones	Difficult
45	11th	Organic Chemistry Some Basic Principles and Techniques	Isomerism	Easy
46	12th	Polymers	Classification of Polymers	Difficult
47	12th	The P-Block Elements	Group 15 Elements	Easy
48	12th	General Principles and Processes of Isolation of Elements	Extraction of Metals (General)	Easy
49	12th	Coordination Compounds	Bonding In Metal Carbonyls	Difficult
50	12th	The Solid State	Radius Ratio In Ionic Solids	Medium
51	12th	The P-Block Elements	Group 16 Elements	Medium
52	12th	Chemistry In Everyday Life	Drugs and Their Classification	Easy
53	11th	The S-Block Elements	Group-2 Elements : Alkaline Earth Metals	Medium
54	12th	Biomolecules	Carbohydrates	Medium
55	11th	Equilibrium	Applications of Equilibrium Constant	Difficult
56	12th	Aldehydes, Ketones and Carboxylic Acids	Chemical Reactions of Aldehydes and Ketones	Difficult

57	12th	The Solid State	Radius Ratio In Ionic Solids	Medium
58	12th	Surface Chemistry	Colloids	Medium
59	12th	Coordination Compounds	Bonding In Coordination Compounds	Medium
60	12th	Solutions	Colligative Properties	Easy

Mathematics (Section 5 & 6)

Mathematics was easy to moderate difficulty. Mathematics had 8 easy questions, 16 medium questions and 2 difficult questions. Following is the question distribution as per Class, Chapter, Topic & Difficulty -

Question No	Class	Chapter Name	Topic Name	Difficulty Level
61	11th	Binomial Theorem	Problems Based On Direct Expansion	Easy
62	11th	Complex Number and Quadratic Equations	Relation Between Roots and Coefficients of A Polynomial Equation	Medium
63	12th	Inverse Trigonometric Functions	The Domains and Ranges of Basic Inverse Trigonometric Functions	Medium
64	12th	Integrals	Definite Integral	Medium
65	11th	Sequences and Series	Sum To N Terms of Special Series	Medium
66	12th	Determinants	Adjoint and Inverse of A Matrix	Medium
67	11th	Conic Sections	Hyperbola	Medium
68	12th	Application of Derivatives	Tangent and Normals	Medium
69	11th	Relations and Functions	Domain and Range For Functions	Medium
70	12th	Differential Equations	General and Particular Solution	Easy
71	11th	Mathematical Reasoning	Mathematical Reasoning	Difficult
72	11th	Mathematical Reasoning	Mathematical Reasoning	Easy
73	11th	Trigonometric Functions	General Solutions of Basic Trigonometric Equations	Medium
74	11th	Binomial Theorem	Coefficients of the term	Difficult
75	11th	Relations and Functions	Domain and Range For Functions	Easy
76	12th	Probability	Binomial Distribution	Medium
77	11th	Trigonometric Functions	General Solutions of Basic Trigonometric Equations	Medium
78	11th	Conic Sections	Circle	Medium
79	12th	Three Dimensional Geometry	Plane	Easy
80	11th	Trigonometric Functions	Properties of Triangles	Medium

81	11th	Matrices	Symmetric and Skew Symmetric Matrix	Medium
82	12th	Vector Algebra	Cross Product	Easy
83	12th	Application of Derivatives	Maximum Area	Medium
84	12th	Application of Derivatives	Rate of Change of Quantities	Easy
85	12th	Differential Equations	General and Particular Solution	Easy
86	11th	Complex Number and Quadratic Equations	Geometry of Complex Numbers	Medium
87	12th	Application of Integrals	Area Under Simple Curves	Difficult

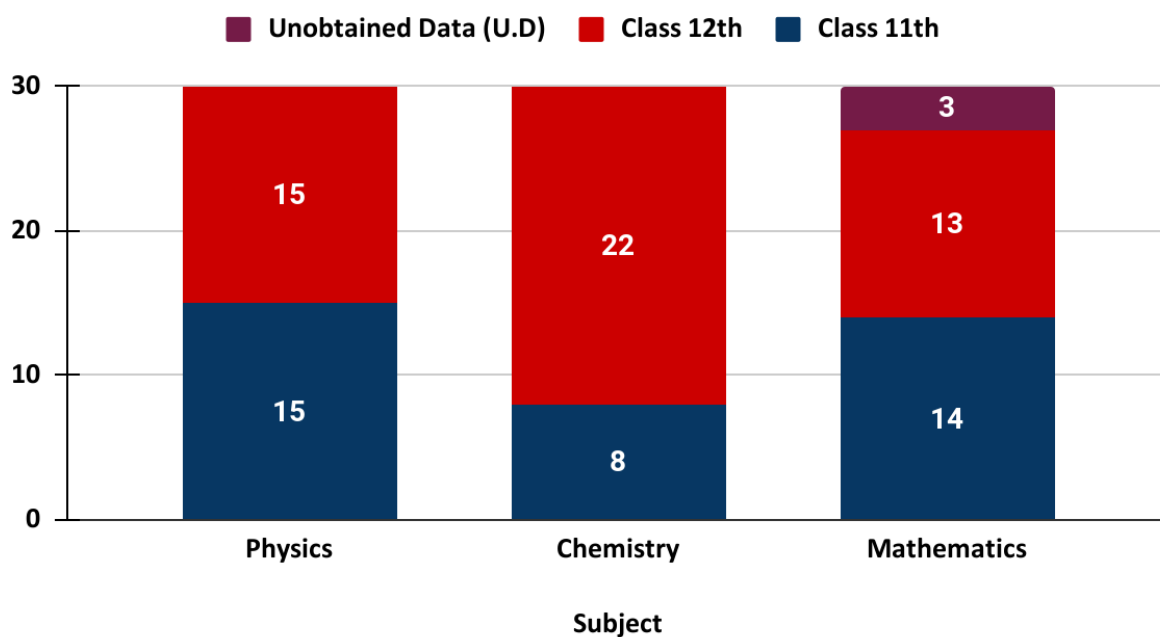
Note - As this being memory-based analysis our experts could figure out 27 out of 30 questions from Section - A (20 questions) and Section - B (7 questions)

Class Wise Question Distribution

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		Non-obtained Data (U.D)		Total Percentage		
	No. of Questions	Total Marks	No of Questions	Total Marks	No of Questions	Total Marks	Class 11	Class 12	U.D
Physics	15	60	15	60	0	0	50%	50%	0%
Chemistry	8	32	22	88	0	0	27%	73%	0%
Mathematics	14	56	13	52	3	12	47%	43%	10%
Grand Total	37	148	50	200	3	12	41%	56%	3%

Class Wise Question Distribution



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.

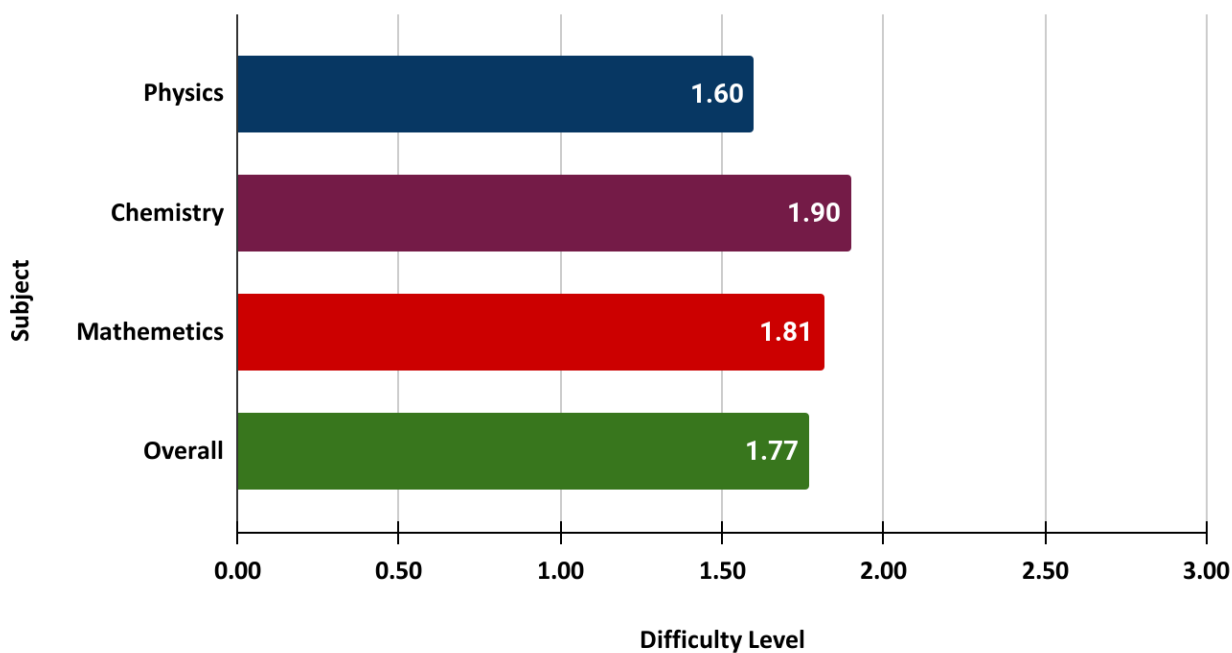
Easy - 1

Medium - 2

Difficult - 3

Subject	Difficulty Level
Physics	1.60
Chemistry	1.90
Mathematics	1.81
Overall	1.77

Overall Difficulty Level - 2022 B.Tech JEE Mains



As per our expert faculties this year B.Tech Shift 1 was almost of the **same difficulty** as that of the previous year. The Overall Difficulty rating for 2021 was 1.77 (moderately difficult)