## In-Depth Analysis - JEE Mains S2 B.E/B.Tech Shift 2 (3:00 P.M to 6:00 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 <br> asked | No. of questions <br> to be attempted | Total Marks |
| :---: | :---: | :---: | :---: | :---: |
| Physics (MCQ) | A | 20 | 20 | 80 |
| Physics <br> (Single Answer Type <br> Questions) | B | 10 | 5 | 20 |
| Chemistry (MCQ) | A | 20 | 20 | 80 |
| Chemistry <br> (Single Answer Type <br> Questions) | B | 10 | 5 | 20 |
| Mathematics (MCQ) | A | 20 | 20 | 80 |
| Mathematics <br> (Single Answer Type <br> Questions) | B | 10 | 5 | 20 |
| Total | 6 | 90 | 75 | 300 |

- Section A consists of 20 questions in each subject (Question Numbers - 01 to 20,31 to 50 and 61 to 80 ). All questions are compulsory.
- Section B consisted of 10 questions in each subject (Question Nos - 21 to 30, 51 to 60 and 81 to 90 ). In Section B, a candidate needs to attempt any 5 questions out of 10 in each subject.


## Subject Wise Analysis

Although it is the analysis of memory-based questions, our experts figured out 70 questions out of 90 questions i.e, 24 questions in Physics, $\mathbf{2 4}$ questions in Chemistry and 22 in Mathematics.

| Subject | Easy |  | Medium |  | Difficult |  | Grand Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | No of <br> Questions | Total <br> Marks | No of <br> Questions | Total <br> Marks | No of <br> Questions | Total <br> Marks | No of <br> Questions | Total <br> Marks |
|  | 10 | 40 | 13 | 52 | 1 | 4 | 24 | 96 |
| Chemistry | 13 | 52 | 11 | 44 | 0 | 0 | 24 | 96 |
| Mathematics | 8 | 32 | 13 | 52 | 1 | 4 | 22 | 88 |
| Grand Total | 31 | 124 | 37 | 148 | 2 | 8 | 70 | 280 |

## Subject Wise Difficulty Level



Subject

- Most of the questions from the Physics were either easy or of moderate difficulty. Just a few difficult questions.
- Most of the questions from Chemistry were easy to moderate \& few were difficult.
- Most of the questions from Mathematics were easy to moderate and few were difficult.


## Physics (Section 1 \& 2)

Physics was moderately difficult. Physics had 10 easy questions, 13 medium-type questions \& 1 difficult question. Following is the question distribution table as per Class, Chapter, Topic \& Difficulty -

| Class | Question No | Chapter Name | Topic Name | Difficulty Level |
| :---: | :---: | :---: | :---: | :---: |
| 11th | 1 | Oscillations | Some Systems Executing Simple Harmonic Motion | Medium |
| 12th | 2 | Current Electricity | Combination of Resistors Series and Parallel | Easy |
| 11th | 3 | Laws of Motion | Equilibrium | Easy |
| 12th | 4 | Moving Charges and Magnetism | Motion of A Charged Particle In A Magnetic Field | Medium |
| 12th | 5 | Electromagnetic Waves | Relation Between Electric Field, Magnetic Field and Speed of Light | Easy |
| 11th | 6 | Units and Measurements | Error Analysis | Easy |
| 11th | 7 | Gravitation | Acceleration Due To Gravity Upon The Earths Surface | Easy |
| 12th | 8 | Moving Charges and Magnetism | Magnetic Field Due To A Current carrying loop | Easy |
| 11th | 9 | Work, Energy and Power | Collisions | Medium |
| 12th | 10 | Atoms | Hydrogen Spectrum | Easy |
| 11th | 11 | Work, Energy and Power | Collisions | Medium |
| 11th | 12 | Motion In A Plane | Projectile Motion | Medium |
| 12th | 13 | Electromagnetic Induction | FaradayS Law of Induction | Easy |
| 12th | 14 | Electromagnetic Induction | Mutual Induction | Medium |
| 12th | 15 | Dual Nature of Radiation and Matter | Particle Nature of Light : The Photon | Medium |
| 12th | 16 | Communication Systems | Amplitude Modulation | Easy |
| 12th | 17 | Ray Optics and Optical Instruments | Refraction of light | Medium |
| 12th | 21 | Current Electricity | Combination of Resistors Series and Parallel | Medium |
| 12th | 22 | Current Electricity | Potentiometer | Medium |
| 11th | 23 | Motion In A Straight Line | Acceleration | Medium |
| 11th | 24 | Kinetic Theory | RMS Speed of Gases | Medium |
| 11th | 25 | Thermodynamics | Heat Engines | Medium |
| 11th | 26 | Work, Energy and Power | Conservation of Energy | Easy |
| 11th | 27 | Waves | Doppler's Effect \& Beats | Difficult |

Note - As this being a memory-based analysis our experts could figure out 24 out of 30 questions from Section - A (17 questions) and Section - B (7 questions)

## Chemistry (Section 3 \& 4)

Chemistry was comparatively easier than the other two subjects. Chemistry had 11 medium \& 13 easy questions. Following is the question distribution table as per Class, Chapter, Topic,\& Difficulty -

| Class | Question No | Chapter Name | Topic Name | Difficulty Level |
| :---: | :---: | :---: | :---: | :---: |
| 11th | 31 | Organic Chemistry Some Basic Principles and Techniques | Acidic Strength | Medium |
| 12th | 32 | Aldehydes, Ketones and Carboxylic Acids | Methods of Preparation of For Aldehydes and Ketones | Medium |
| 11th | 33 | "Classification of Elements and Periodicity In Properties" | Periodic Trends In Physical Properties | Easy |
| 12th | 34 | Biomolecules | Carbohydrates | Easy |
| 12th | 35 | Chemistry In Everyday Life | Drugs and Their Classification | Easy |
| 11th | 36 | The S-Block Elements | Group-1 Elements : Alkali Metals | Medium |
| 12th | 37 | The P-Block Elements | Group 17 Elements | Easy |
| 11th | 38 | Equilibrium | Applications of Equilibrium Constant | Easy |
| 12th | 39 | Polymers | Uses of polymers | Easy |
| 12th | 40 | Coordination Compounds | Stability of Coordination Compounds | Medium |
| 12th | 41 | Aldehydes, Ketones and Carboxylic Acids | Aldol reactions | Medium |
| 11th | 42 | Hydrocarbons | Electrophilic Substitution Reactions | Medium |
| 11th | 43 | Environmental Chemistry | Water Pollution | Medium |
| 11th | 44 | Hydrogen | Water | Easy |
| 11th | 45 | Chemical Bonding and Molecular Structure | Hybridization | Easy |
| 11th | 51 | Chemical Bonding and Molecular Structure | Hybridization | Easy |
| 11th | 52 | Classification of Elements and <br> Periodicity In Properties | Nature of oxide | Easy |
| 11th | 53 | Structure of Atom | Line spectrum | Easy |
| 11th | 54 | States of Matter | The Gas Laws | Easy |
| 12th | 55 | Chemical Kinetics | First order | Medium |
| 11th | 56 | Some Basic Concepts of Chemistry | Stoichiometry and Stoichiometric Calculations | Easy |
| 12th | 57 | Haloalkanes and Haloarenes | Optical Isomerism | Medium |
| 12th | 58 | ElectroChemistry | Molar Conductivity | Medium |
| 11th | 59 | Structure of Atom | Line spectrum | Medium |

Note - As this being a memory-based analysis our experts could figure out 24 out of 30 questions from Section - A (15 questions) and Section - B (9 questions)

## Mathematics (Section 5 \& 6)

Mathematics was of moderate difficulty. Mathematics had 8 easy questions, 13 medium questions and 1 difficult question. Following is the question distribution as per Class, Chapter, Topic \& Difficulty -

| Class | Question No | Chapter Name | Topic Name | Difficulty Level |
| :---: | :---: | :---: | :---: | :---: |
| 12th | 61 | Relations and Functions | Combination | Easy |
| 11th | 62 | Trigonometric Functions | Ratio | Medium |
| 11th | 63 | Limits and Derivatives | Limit | Medium |
| 12th | 64 | Probability | Conditional Probability | Easy |
| 12th | 65 | Relations and Functions | Range | Medium |
| 11th | 66 | Complex Number and Quadratic Equations | Location of Root | Easy |
| 11th | 67 | Mathematical Reasoning | Double Implies | Easy |
| 12th | 68 | Matrices | Operation On Matrices (Addition, Subtraction and Multiplication) | Medium |
| 11th | 69 | Conic Sections | Hyperbola | Medium |
| 12th | 70 | Three Dimensional Geometry | Shortest Distance Between Two Lines | Easy |
| 12th | 71 | Application of Integrals | Area Under Curves | Medium |
| 12th | 72 | Integrals | Properties of Definite Integrals | Medium |
| 12th | 73 | Differential Equations | Methods of Solution of Ordinary Differential Equation of First Order and First Degree | Medium |
| 11th | 74 | Sequences and Series | Telescopic Sums and Products | Easy |
| 11th | 75 | Conic Sections | Parabola | Medium |
| 12th | 76 | Vector Algebra | Projection of vector | Medium |
| 11th | 77 | Complex Number | Inequality of Modulus | Easy |
| 11th | 79 | Conic Sections | Straight Line | Medium |
| 11th | 81 | Binomial Theorem | Remainder | Medium |
| 11th | 82 | Statistics | Mean Deviation | Easy |
| 11th | 83 | Conic Sections | Ellipse | Medium |
| 11th | 84 | Quadratic Equations | Common Roots | Difficult |

Note - As this being a memory-based analysis our experts could figure out 22 out of 30 questions from Section-A (17 questions) and Section - B (5 questions)

## Class Wise Question Distribution

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

| Subject |  | 11 th |  | 12th |  | Total Percentage |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Total <br> Marks | No of <br> Questions | Total <br> Marks | Class 11 | Class 12 |  |
| Physics | 12 | 48 | 12 | 48 | $40 \%$ | $40 \%$ |  |
| Chemistry | 14 | 56 | 10 | 40 | $47 \%$ | $33 \%$ |  |
| Mathematics | 13 | 52 | 9 | 36 | $43 \%$ | $30 \%$ |  |
| Grand Total | 39 | 156 | 31 | 124 | $43 \%$ | $34 \%$ |  |

Note - Percentage are taken out of 30 questions only. Grand Total percentages represent the average of the above-mentioned percentages.

Class Wise Question Distribution
Class 12th $\quad$ Class 11th


## 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 | 1.63 |
| Chemistry | 1.46 |
| Mathematics | 1.68 |
| Overall | 1.59 |

Overall Difficulty Level - JEE Mains 2022


As per our expert faculties this year JEE Mains session 2 B.E/B. Tech Shift 2 was of easy to moderate difficulty.

