

NSEJS - 2017

A Detailed Analysis by Resonance

On 19th November 2017, NSEJS (National Standard Examination in Junior Science) - 2017 exam was conducted by the Indian Association of Physics Teachers (IAPT) at many centers all over the country. NSEJS is the stepping stage for selection of aspiring and talented students in the Junior Science Olympiad Program. The student can move forward to other stages only after clearing this stage.

Eligibility: Only Indian citizens born between January 1, 2003 and December 31, 2004, (both days inclusive) and are students studying in Class X or lower as of November 30, 2017, can apply and appear for NSEJS 2017. The student must not appear any of the senior science Olympiad. The student has to himself re-assure his eligibility. At any stage if the student is found to be not eligible for the exam, he/she may be disqualified from the program.

Syllabus: The syllabus for National Standard Examination in Junior Science (NSEJS) is almost similar as the curriculum of secondary level (Class IX and Class X) of CBSE. However, only basic guideline for the course is mentioned. No detailed syllabus is given for NSEJS. There were questions from physics, mathematics, biology and chemistry.

Question Paper: The medium of test was English only and it comprised of 80 objective type questions, each with only one of the four options correct with 3 marks each and -1 negative marking for incorrect answer.

Qualifying for the Second Stage: The basic objective of conducting this test is not focusing on merit but to involve as many students from the country to participate in the exam and try to show and expose their talent. Hence the selection to the stage II examinations i.e. Indian National Olympiad Examinations (INOs) is based on the following scheme:

a) Eligibility Clause: To be eligible to get to the next level, i.e. the second stage, it is necessary that a student scores at-least a Minimum Admissible Score (MAS) which is 50% of the average of top 10 students across the nation.

b) Proportional Representation Clause: The maximum number of students that can get to Stage II (INO) in each subject is around 300. These many students are not selected only on the merit basis but also on proportionate basis. This proportion is decided on the base of the number of candidates who appeared for NSE in the previous year from that center in each State or Union Territory (UT). In case there is a tie at the last position, then all the students competing for the last position will be eligible to move to stage II. However it's necessary that the selected students fulfill the eligibility clause laid out above. The total number to be selected from centers in each State for each subject will be displayed on the IAPT and HBCSE websites.

Minimum Representation Clause: Notwithstanding the proportional representation clause the number of students selected for INO from each State and UT must be at least one, provided that the eligibility clause is satisfied.

Merit Clause: As stated above, approximately 300 students are to be selected for second stage. However, all the students scoring 80% of the average of top 10 students are considered selected even if the total selections surpassed 300.

There will be no other criterion or provision for selection to the Indian National Olympiad Examinations (INOs). All students who qualify to appear for the INJSO get a certificate of merit from IAPT.

OVERALL MARKS DISTRIBUTION

The paper pattern was same as last year. The paper had 80 questions each worth 3 marks. All questions were objective type with single correct option. If we talk about subject wise, then there were 20 questions from Mathematics and Biology, and 21 questions were from Physics and 19 questions were asked from Chemistry.

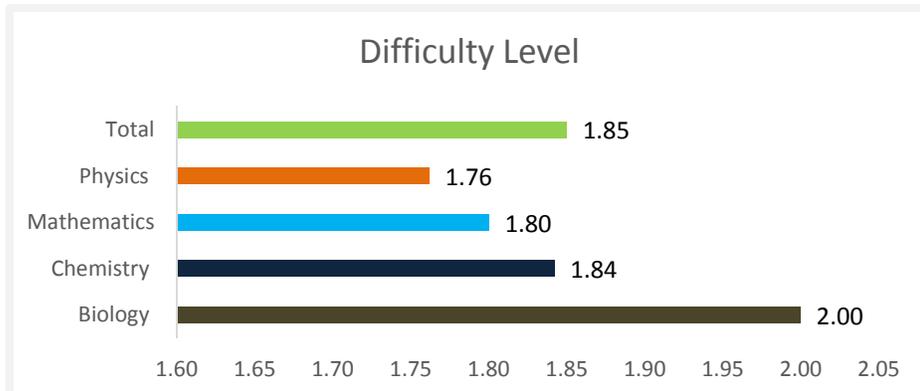
| Subject | Class 8 | | Class 9 | | Class 10 | | Class 11 | | Class 12 | | Total | |
|--------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| | No of Questions | Total Marks |
| Biology | 1 | 3 | 5 | 15 | 3 | 9 | 7 | 21 | 4 | 12 | 20 | 60 |
| Chemistry | | | 4 | 12 | 10 | 30 | 5 | 15 | | | 19 | 57 |
| Mathematics | 2 | 6 | 10 | 30 | 5 | 15 | 3 | 9 | | | 20 | 60 |
| Physics | | | 7 | 21 | 7 | 21 | 5 | 15 | 2 | 6 | 21 | 63 |
| Grand Total | 3 | 9 | 26 | 78 | 25 | 75 | 20 | 60 | 6 | 18 | 80 | 240 |

OVERALL DIFFICULTY LEVEL ANALYSIS

In this analysis we have rated every question on a scale of 1 to 3. The ratings are done by expert faculty of Resonance. The individual ratings are then averaged to calculate overall difficulty level.

- 1: Easy
- 2: Moderate
- 3: Difficult

| Subject | Difficulty Level |
|--------------|------------------|
| Biology | 2.00 |
| Chemistry | 1.84 |
| Mathematics | 1.80 |
| Physics | 1.76 |
| Total | 1.85 |



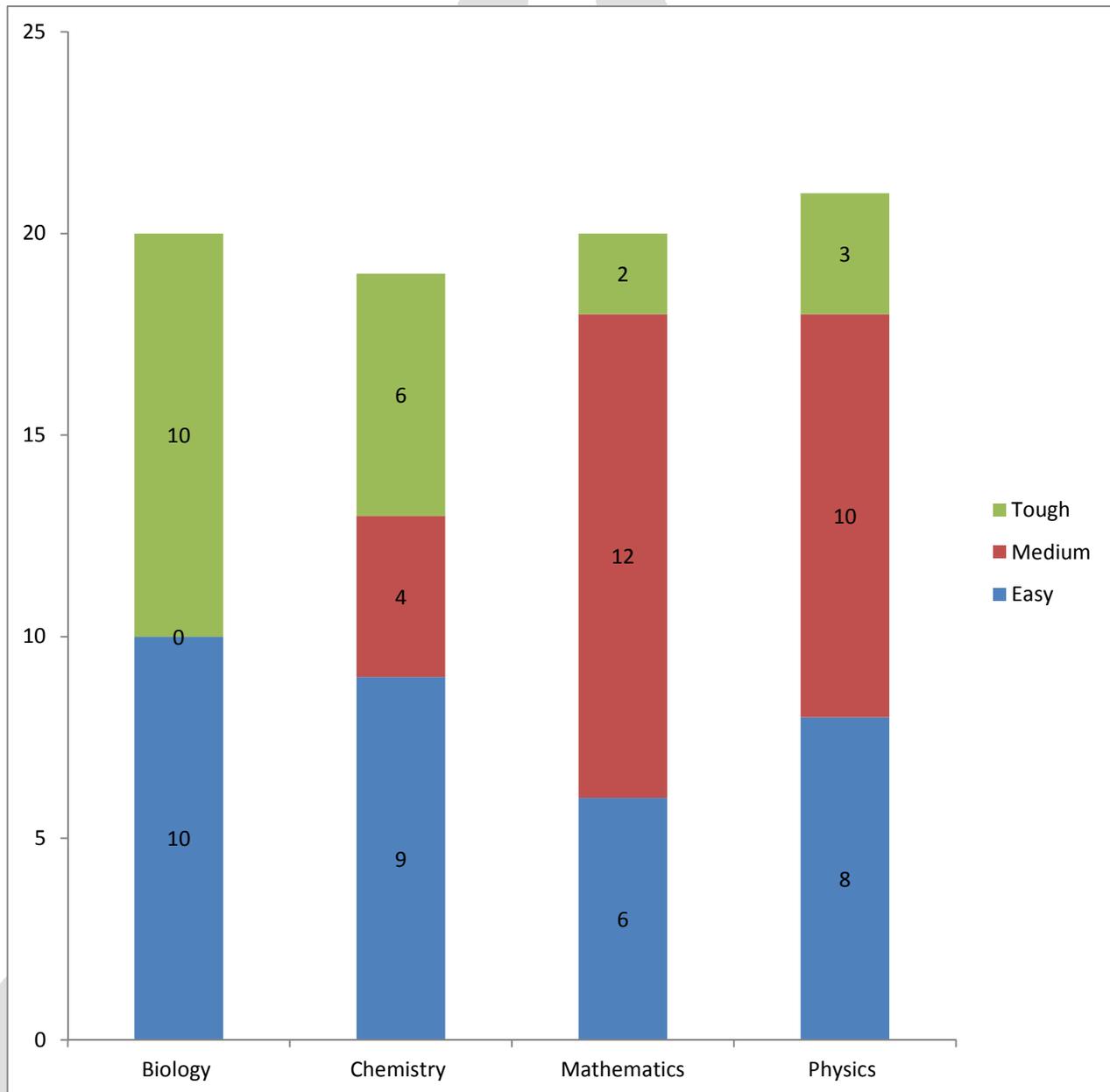
DIFFICULTY LEVEL ANALYSIS: NO OF QUESTIONS

| Subject | Easy Level | | Medium Level | | Difficult Level | | Total | |
|--------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| | No of Questions | Total Marks |
| Biology | 10 | 30 | | | 10 | 30 | 20 | 60 |
| Chemistry | 9 | 27 | 4 | 12 | 6 | 18 | 19 | 57 |
| Mathematics | 6 | 18 | 12 | 36 | 2 | 6 | 20 | 60 |
| Physics | 8 | 24 | 10 | 30 | 3 | 9 | 21 | 63 |
| Grand Total | 33 | 99 | 26 | 78 | 21 | 63 | 80 | 240 |

Resonance Experts feel that physics and mathematics were easy, while Biology was on tougher side compared with other subjects. While around 99 Marks can be considered easy overall, 78 marks are moderately difficulty and 63 marks are considered difficult by Resonance Team.

Overall, it is felt by Resonance Faculty Team that paper was on easier side compared to last year and the cut-off is expected to be higher than that of last year.

QUESTION WISE DIFFICULTY BREAKUP



SUBJECT WISE ANALYSIS

PHYSICS ANALYSIS

| Physics | | | |
|--|-----------------|-------------|----------------|
| UNIT & TOPIC NAME | NO OF QUESTIONS | TOTAL MARKS | (%) WEIGHTAGE |
| Physics | 21 | 63 | 100.00% |
| Electricity | 2 | 6 | 9.52% |
| Combination of Resistance | 2 | 6 | 9.52% |
| Electrostatics | 1 | 3 | 4.76% |
| Electric potential Energy | 1 | 3 | 4.76% |
| Fluid | 2 | 6 | 9.52% |
| Equation of Continuity | 1 | 3 | 4.76% |
| Hydrometer | 1 | 3 | 4.76% |
| Fluid | 1 | 3 | 4.76% |
| Buoyant Force | 1 | 3 | 4.76% |
| Heat | 2 | 6 | 9.52% |
| Thermal Expansion | 1 | 3 | 4.76% |
| Transfer of Heat | 1 | 3 | 4.76% |
| Light | 4 | 12 | 19.05% |
| Human Eye | 1 | 3 | 4.76% |
| Reflection through Spherical Mirror | 1 | 3 | 4.76% |
| Reflection through two inclined plain Mirror | 1 | 3 | 4.76% |
| Refraction | 1 | 3 | 4.76% |
| Magnetism and EMI | 2 | 6 | 9.52% |
| Force on charge particle | 1 | 3 | 4.76% |
| Lenz's Law | 1 | 3 | 4.76% |
| Motion | 3 | 9 | 14.29% |
| Acceleration | 1 | 3 | 4.76% |

| | | | |
|--------------------------------|-----------|-----------|----------------|
| Equation of Motion | 1 | 3 | 4.76% |
| Graphs | 1 | 3 | 4.76% |
| Newton's Laws of Motion | 3 | 9 | 14.29% |
| Balanced Force | 2 | 6 | 9.52% |
| Newton's III Law of Motion | 1 | 3 | 4.76% |
| Wave | 1 | 3 | 4.76% |
| Principle of superposition | 1 | 3 | 4.76% |
| Grand Total | 21 | 63 | 100.00% |

CHEMISTRY ANALYSIS

| Chemistry | | | |
|---------------------------------------|-----------------|-------------|----------------|
| UNIT & TOPIC NAME | NO OF QUESTIONS | TOTAL MARKS | (%) WEIGHTAGE |
| Chemistry | 19 | 57 | 100.00% |
| Periodic table | 1 | 3 | 5.26% |
| Modern Periodic table | 1 | 3 | 5.26% |
| Acid, Base and Salt | 3 | 9 | 15.79% |
| Commercial Important Compound | 1 | 3 | 5.26% |
| pH | 1 | 3 | 5.26% |
| Role of pH in daily life | 1 | 3 | 5.26% |
| Atoms and Molecule | 2 | 6 | 10.53% |
| Mole Concept | 2 | 6 | 10.53% |
| Carbon and It's Compound | 2 | 6 | 10.53% |
| Functional Group | 1 | 3 | 5.26% |
| Uses of Carbon Compound | 1 | 3 | 5.26% |
| Chemical Reaction and Equation | 1 | 3 | 5.26% |
| Displacement Reaction | 1 | 3 | 5.26% |
| Ionic Equilibrium | 1 | 3 | 5.26% |
| Ionic Product of water | 1 | 3 | 5.26% |

| | | | |
|-------------------------------|-----------|-----------|----------------|
| Metals and Non -Metals | 1 | 3 | 5.26% |
| Alloy's | 1 | 3 | 5.26% |
| Metals and Non- Metals | 2 | 6 | 10.53% |
| Displacement Reaction | 1 | 3 | 5.26% |
| Nature of Oxide | 1 | 3 | 5.26% |
| Mole Concept | 3 | 9 | 15.79% |
| Equivalent Concept | 2 | 6 | 10.53% |
| Gay Lussac's Law | 1 | 3 | 5.26% |
| States of Matter | 1 | 3 | 5.26% |
| Gas Laws | 1 | 3 | 5.26% |
| Structure of Atom | 2 | 6 | 10.53% |
| Average Atomic Mass | 1 | 3 | 5.26% |
| Valency | 1 | 3 | 5.26% |
| Grand Total | 19 | 57 | 100.00% |

BIOLOGY ANALYSIS

| Biology | | | |
|---------------------------------|-----------------|-------------|----------------|
| UNIT & TOPIC NAME | NO OF QUESTIONS | TOTAL MARKS | (%) WEIGHTAGE |
| Biology | 20 | 60 | 100.00% |
| Adaptations | 2 | 6 | 10.00% |
| Terrestrial Adaptations | 1 | 3 | 5.00% |
| Xerophytic Adaptations | 1 | 3 | 5.00% |
| Biomolecules | 2 | 6 | 10.00% |
| Codons | 1 | 3 | 5.00% |
| DNA | 1 | 3 | 5.00% |
| Cell | 2 | 6 | 10.00% |
| Lysosomes | 1 | 3 | 5.00% |
| Plastid | 1 | 3 | 5.00% |
| Control and Coordination | 1 | 3 | 5.00% |
| Plant Hormones | 1 | 3 | 5.00% |
| Diversity | 2 | 6 | 10.00% |
| Non Chordates | 1 | 3 | 5.00% |
| Protista | 1 | 3 | 5.00% |
| Ecology | 1 | 3 | 5.00% |
| Global Warming | 1 | 3 | 5.00% |
| Heredity and Evolution | 2 | 6 | 10.00% |
| Dihybrid Cross | 1 | 3 | 5.00% |
| Evidence of Evolution | 1 | 3 | 5.00% |
| Micro-organism | 1 | 3 | 5.00% |
| Benefits of Micro-organism | 1 | 3 | 5.00% |
| Nutrition | 1 | 3 | 5.00% |
| Nutrition in Animals | 1 | 3 | 5.00% |
| Reproduction | 3 | 9 | 15.00% |
| Asexual Reproduction | 1 | 3 | 5.00% |

| | | | |
|---------------------------|-----------|-----------|----------------|
| Pollination | 1 | 3 | 5.00% |
| Reproduction in Plants | 1 | 3 | 5.00% |
| Respiration | 2 | 6 | 10.00% |
| Respiration in plants | 1 | 3 | 5.00% |
| Respiratory Quotient | 1 | 3 | 5.00% |
| Why do we fall ill | 1 | 3 | 5.00% |
| Types of Disease | 1 | 3 | 5.00% |
| Grand Total | 20 | 60 | 100.00% |

MATHEMATICS ANALYSIS

| Mathematics | | | |
|---|-----------------|-------------|----------------|
| UNIT & TOPIC NAME | NO OF QUESTIONS | TOTAL MARKS | (%) WEIGHTAGE |
| Mathematics | 20 | 60 | 100.00% |
| Area of Triangles and Parallelograms | 1 | 3 | 5.00% |
| Area of Triangle | 1 | 3 | 5.00% |
| Commercial Mathematics | 1 | 3 | 5.00% |
| Speed and Time | 1 | 3 | 5.00% |
| Cyclic Quadrilateral | 1 | 3 | 5.00% |
| Ptolemy's Theorem | 1 | 3 | 5.00% |
| Mental Ability | 1 | 3 | 5.00% |
| Calendar Test | 1 | 3 | 5.00% |
| Number System | 3 | 9 | 15.00% |
| Euclid Division Algorithm | 1 | 3 | 5.00% |
| Remainder Problems using Binomial Theorem | 1 | 3 | 5.00% |
| Surds | 1 | 3 | 5.00% |
| Polynomials | 6 | 18 | 30.00% |
| Algebraic Identities | 6 | 18 | 30.00% |
| Quadratic Equations | 1 | 3 | 5.00% |

| | | | |
|--------------------------------|-----------|-----------|----------------|
| Nature of Roots | 1 | 3 | 5.00% |
| Quadrilaterals | 1 | 3 | 5.00% |
| Properties of Quadrilaterals | 1 | 3 | 5.00% |
| Sequence and Series | 2 | 6 | 10.00% |
| Arithmetic Progressions | 1 | 3 | 5.00% |
| V(n)-V(n-1) method | 1 | 3 | 5.00% |
| Solution of Triangle | 1 | 3 | 5.00% |
| Circumcircle | 1 | 3 | 5.00% |
| Square and Square Roots | 1 | 3 | 5.00% |
| Squares | 1 | 3 | 5.00% |
| Statistics | 1 | 3 | 5.00% |
| Mean of Grouped Data | 1 | 3 | 5.00% |
| Grand Total | 20 | 60 | 100.00% |

STATE WISE EXPECTED CUTOFF

Overall, it is felt by Resonance Faculty Team that paper was on easier side compared to last year and the cut-off is expected to be higher than that of last year. The Cutoff for Rajasthan is estimated to be 165 to 170.

| State Wise Expected Cutoff (2017) | | | |
|-----------------------------------|-----------------|----------------|-------------------------|
| Expected Cutoff (2017) | 2016 | 2017 | |
| Average of Top 10 Scores (X) | 188 | 208 | |
| Merit Index (80% of X) | 150 | 166 | |
| MAS (50% of X) | 94 | 104 | |
| State | Number of Seats | Cut-off (2016) | Expected Cut-off (2017) |
| Andhra Pradesh | 9 | 150 | 166 |
| Telangana | 10 | 153 | 166 |
| Rajasthan | 17 | 137 | 166 |
| Maharashtra | 28 | 119 | 132 |
| Utter Pradesh | 55 | 99 | 110 |
| Tamil Nadu | 17 | 115 | 127 |
| Odisha | 9 | 128 | 142 |
| Delhi | 6 | 123 | 136 |
| Madhya Pradesh | 19 | 107 | 118 |
| Haryana | 6 | 122 | 135 |
| Gujarat | 13 | 124 | 137 |
| Jharkhand | 6 | 128 | 142 |
| West Bengal | 19 | 98 | 108 |
| Bihar | 18 | 94 | 104 |
| Karnataka | 15 | 96 | 106 |
| Punjab | 6 | 112 | 124 |
| Chandigarh | 1 | 138 | 153 |
| Chhattisgarh | 6 | 101 | 112 |
| Himachal Pradesh | 2 | 118 | 131 |
| Uttarakhand | 3 | 101 | 112 |
| Kerala | 10 | 94 | 104 |
| Jammu & Kashmir | 3 | 101 | 112 |
| Tripura | 2 | 94 | 104 |
| All Other Regions | 20 | 94 | 104 |

COMPARISON FROM LAST YEAR

COMPARISON OF DIFFICULTY LEVEL SUBJECT WISE

| Comparison of Difficulty Level Subject Wise | | |
|---|-----------------------|-----------------------|
| Subject | Difficulty Level 2016 | Difficulty Level 2017 |
| Biology | 2.21 | 2.00 |
| Chemistry | 2.00 | 1.84 |
| Mathematics | 1.95 | 1.80 |
| Physics | 2.30 | 1.76 |
| Total | 2.11 | 1.85 |

