

NSEJS - 2018

A Detailed Analysis by Nucleus Education

On 18th November 2018, 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 first 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, 2004 and December 31, 2005, (both days inclusive) and are students studying in Class X or lower as of November 30, 2018, can apply and appear for NSEJS 2018. The student must not appear any of the senior science Olympiad. The student has to himself re-assure his/her 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. In experience, syllabus has been found to exceed CBSE curriculum quite easily and has been found to match much harder ICSE board.

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. Total score of the paper is 240 marks.

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 is 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. Following is the state wise list:

State wise quota for selection to INO-2019			
	State/UT	Quota for INBO, INChO, INJSO and INPhO	Quota for INAO Group A and Group B
1	A & N Islands	1	1
2	Andhra Pradesh	10	8
3	Arunachal Pradesh	2	2
4	Assam	8	7
5	Bihar	25	21
6	Chandigarh	1	1
7	Chhattisgarh	7	6
8	D & N Haveli	1	1
9	Daman & Diu	1	1
10	Delhi	6	5
11	Goa	2	2
12	Gujarat	13	11
13	Harvana	7	6
14	Himachal Pradesh	2	2
15	Jammu & Kashmir	3	2
16	Jharkhand	6	5
17	Karnataka	14	12
18	Kerala	8	7
19	Lakshadweep	1	1
20	Madhya Pradesh	19	16
21	Maharashtra	28	24
22	Manipur	2	2
23	Meghalaya	2	2
24	Mizoram	2	2
25	Nagaland	2	2
26	Odisha	10	8
27	Pondicherry	1	1
28	Puniab	7	6
29	Rajasthan	18	15
30	Sikkim	2	2
31	Tamil Nadu	17	14
32	Telangana	8	7
33	Tripura	2	2
34	Uttar Pradesh	51	42
35	Uttarakhand	3	3
36	West Bengal	21	17
	Total	313	266

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 IAP

CLASS WISE MARKS DISTRIBUTION

Subject	Class 9	Class 10	Class 11	Class 12	Grand Total
Biology	21	9	9	21	60
Chemistry	12	18	21	9	60
Mathematics	3	45	12		60
Physics	24	33	3		60
Grand Total	60	105	45	30	240

Key Point: Questions from class IX and X were also advanced and their extension can be found in class XI and XII. This made the paper much more tough than previous year.

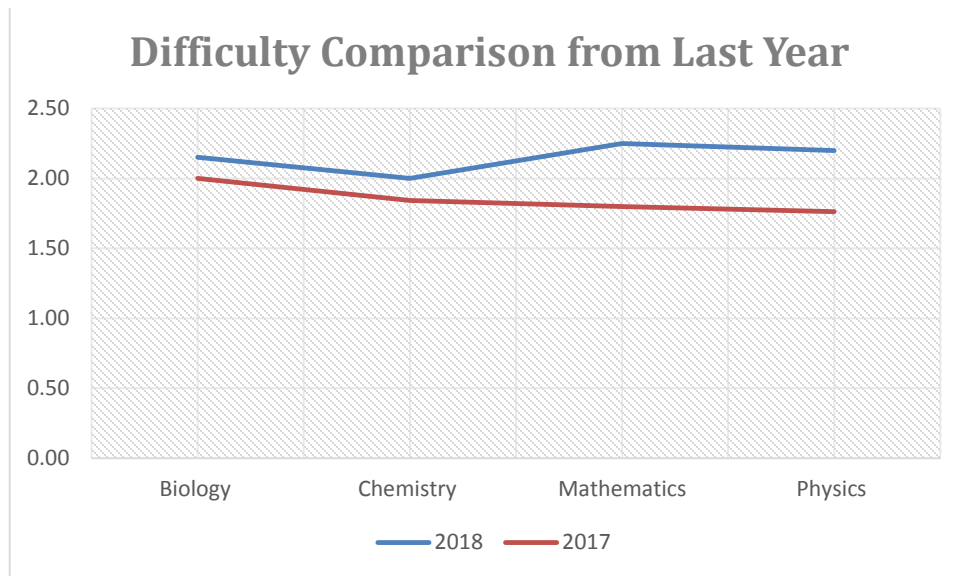
OVERALL DIFFICULTY LEVEL ANALYSIS

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

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

Subject	Difficulty Level
Biology	2.15
Chemistry	2.00
Mathematics	2.25
Physics	2.20
Total	2.15



DIFFICULTY LEVEL COMPARISON FROM PREVIOUS YEAR

Difficulty Level Analysis: No of Questions

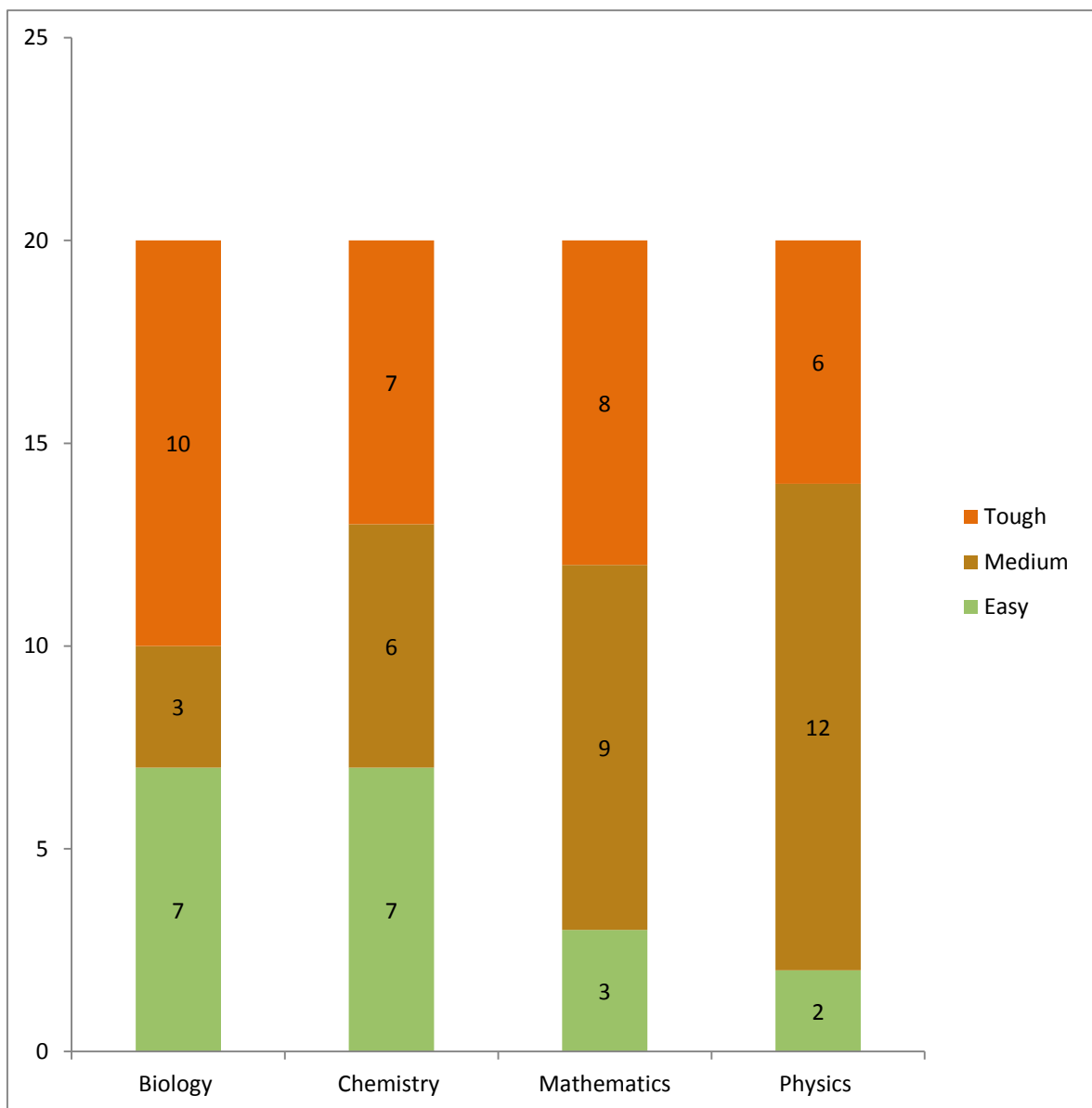
Subject	Easy	Medium	Difficult	Grand Total
Biology	21	9	30	60
Chemistry	21	18	21	60
Mathematics	9	27	24	60
Physics	6	36	18	60
Grand Total	57	90	93	240

Following points were observed by expert analysts of Nucleus Education:

- **Mathematics:** The paper was very tricky and some questions even touched PRMO level. In two questions, multiple options were coming which may have troubled students. The paper was very lengthy.
- **Physics:** Physics paper was equally difficult because of its tricky questions and some new concepts from which concepts were asked. Two questions in Physics were considered controversial.
- **Chemistry:** In Chemistry, calculations were difficult and denial of use of calculator made it worse for students. Paper was lengthy and overall considered difficult from last year. Two questions were controversial in Chemistry.
- **Biology:** Biology paper was lengthy and questions came from Biotechnology part. It was drastically different from what has been seen in last few years.

Overall the paper was considered to be tough as compared to last year largely attributed due to multiple reasons stated above. In this context, cut off is expected to decrease significantly.

Question Wise Difficulty Breakup



SUBJECT WISE ANALYSIS
BIOLOGY ANALYSIS

Biology			
UNIT & TOPIC NAME	NO OF QUESTIONS	TOTAL MARKS	(%) WEIGHTAGE
Biology	20	60	100.00%
Biomolecules	1	3	5.00%
DNA	1	3	5.00%
Biotechnology	2	6	10.00%
DNA Fingerprinting	1	3	5.00%
GMO	1	3	5.00%
Cell	4	12	20.00%
Cell Features	1	3	5.00%
Cell Organelle	1	3	5.00%
Generation Time	1	3	5.00%
Prokaryotes	1	3	5.00%
Control and Coordination	3	9	15.00%
Chemical Coordination	2	6	10.00%
Nerve Construction	1	3	5.00%
Crop Improvement	1	3	5.00%
Bio fertilizers	1	3	5.00%
Diversity	2	6	10.00%
Animal Diversity	2	6	10.00%
Ecology	1	3	5.00%
Biodiversity	1	3	5.00%
Genetics	4	12	20.00%
Genetic Disorder	1	3	5.00%
Multiple allele	2	6	10.00%
Mutation	1	3	5.00%
Health and Disease	1	3	5.00%
Immunity	1	3	5.00%
Heredity	1	3	5.00%
Codons	1	3	5.00%
Grand Total	20	60	100.00%

CHEMISTRY ANALYSIS

Chemistry			
UNIT & TOPIC NAME	NO OF QUESTIONS	TOTAL MARKS	(%) WEIGHTAGE
Chemistry	20	60	100.00%
Acid,Bases and Salt	3	9	15.00%
Acid	1	3	5.00%
pH indicator	1	3	5.00%
pH of solution	1	3	5.00%
Atoms and Molecules	2	6	10.00%
Mole Concept	2	6	10.00%
Carbon	1	3	5.00%
Hydrocarbon	1	3	5.00%
Equivalent Concept	2	6	10.00%
Redox reactions	1	3	5.00%
Titration	1	3	5.00%
Gaseous State	1	3	5.00%
Ideal gas equation	1	3	5.00%
Metals and Non Metals	2	6	10.00%
Ionic Compound	1	3	5.00%
Ores	1	3	5.00%
Mole Concept	7	21	35.00%
Empirical Formula	1	3	5.00%
Eudiometry	1	3	5.00%
Law of conservation of mass	1	3	5.00%
Mixing of solution	1	3	5.00%
Molarity	2	6	10.00%
Stoichiometry	1	3	5.00%
Periodic Table	1	3	5.00%
Atomic radii and Ionic Radii	1	3	5.00%
Solutions	1	3	5.00%
Surface tension	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%
Circle	2	6	10.00%
Circle touching each other	1	3	5.00%
Ptolemy Theorem	1	3	5.00%
Linear Equations	1	3	5.00%
Integer Solution	1	3	5.00%
Linear Equations in 2 Variable	1	3	5.00%
Word Problems	1	3	5.00%
Number System	4	12	20.00%
Divisibility	1	3	5.00%
EDL	1	3	5.00%
Factors and Multiples	1	3	5.00%
Greatest Integer	1	3	5.00%
Permutation and Combination	2	6	10.00%
Geometry Problems	2	6	10.00%
Polynomials	1	3	5.00%
Ratio and Proportion	1	3	5.00%
Progressions	4	12	20.00%
nth Term of AP	1	3	5.00%
Properties of AP	1	3	5.00%
Properties of GP	1	3	5.00%
Sum of GP	1	3	5.00%
Quadratic Equations	1	3	5.00%
Theory of Equation	1	3	5.00%
Triangle	3	9	15.00%
Advance Theorems	1	3	5.00%
Area related to Parallelogram	1	3	5.00%
Similarity	1	3	5.00%
Trigonometry	1	3	5.00%
Application of trigonometry	1	3	5.00%
Grand Total	20	60	100.00%

PHYSICS ANALYSIS

Phyiscs			
UNIT & TOPIC NAME	NO OF QUESTIONS	TOTAL MARKS	(%) WEIGHTAGE
Physics	20	60	100.00%
ELECTRICITY	4	12	20.00%
ammeter and voltmeter	1	3	5.00%
Coulomb's law	1	3	5.00%
Electrical Resistance	1	3	5.00%
Properties of Charge	1	3	5.00%
Fluid	2	6	10.00%
Anomalous Behavior of Charge	1	3	5.00%
Buoyant Force	1	3	5.00%
Gravitation	1	3	5.00%
Simple Pendulum	1	3	5.00%
HEAT	2	6	10.00%
Linear expansion	1	3	5.00%
Radiation	1	3	5.00%
LIGHT	4	12	20.00%
Plane mirror	1	3	5.00%
Proof of mirror formula	1	3	5.00%
Total internal reflection	1	3	5.00%
Properties of light	1	3	5.00%
Magnetism	1	3	5.00%
Lenz Law	1	3	5.00%
Motion	2	6	10.00%
Distance Displacement	1	3	5.00%
Motion under Gravity	1	3	5.00%
Sound	1	3	5.00%
Echo	1	3	5.00%
Units and Dimension	1	3	5.00%
Units and Dimension	1	3	5.00%
WAVE MOTION AND SOUND	1	3	5.00%
Speed wave-affecting factors	1	3	5.00%
Work Power and Energy	1	3	5.00%
Power	1	3	5.00%
Grand Total	20	60	100.00%

EXPECTED CUTOFF

Nucleus Education Experts feel that as the overall paper was difficult from previous year, the cutoff is expected to decrease from last year. Following is the state wise cut off for NSEJS:

State	Seats	Cut off (2017)	Expected Cutoff (2018)
Andhra Pradesh	10	158	125
Telangana	8	161	125
Rajasthan	18	158	115
Maharashtra	28	137	108
Uttar Pradesh	51	119	78
Tamil Nadu	17	126	100
Odisha	10	133	105
Delhi	6	158	125
Madhya Pradesh	19	119	85
Haryana	7	158	120
Gujarat	13	138	109
Jharkhand	6	123	97
West Bengal	21	124	98
Bihar	25	114	78
Karnataka	14	132	100
Punjab	7	133	105
Chandigarh	1	173	125
Chhattisgarh	7	110	78
Himachal Pradesh	2	117	78
Uttarakhand	3	118	78
Kerala	8	102	81
Jammu and Kashmir	3	108	85
Tripura	2	99	78
Assam	8	101	78
Daman and Diu	1	118	93
Puducherry	1	144	114
Sikkim	2	152	120
All Other Regions	15	No Student Selected	78