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What would it be like to fly free in space? At about 100 meters from the cargo bay of the space shuttle Challenger, Bruce McCandless II was living the dream -- floating farther out than anyone had ever been before. Guided by a Manned Manoeuvring Unit (MMU), astronaut McCandless, pictured, was floating free in space. McCandless and fellow NASA astronaut Robert Stewart were the first to experience such an "untetherd space walk" during space shuttle mission 41-B in 1984. The MMU worked by shooting jets of nitrogen and was used to help deploy and retrieve Satellites. With a mass over 140 kilograms, an MMU is heavy on Earth, but, like everything, is weightless when drifting in orbit. The MMU was later replaced with the SAFER backpack propulsion unit. https://apod.nasa.gov/apod/ap200209.html

PHYSICS NEWS

Study uncovers new electronic state of matter

A research team led by professors from the University of Pittsburgh Department of Physics and Astronomy has announced the discovery of a new electronic state of matter. Jeremy Levy, a distinguished professor of condensed matter physics, and Patrick Irvin, a research associate professor are coauthors of the paper "Pascal conductance series in ballistic one-dimensional $LaAlO_3/SrTiO_3$ channels." The research focuses on measurements in one-dimensional conducting systems where electrons are found to travel without scattering in groups of two or more at a time, rather than individually. "Normally, electrons in semiconductors or metals move and scatter, and eventually drift in one direction if you apply a voltage. But in ballistic conductors the electrons move more like cars on a highway. The advantage of that is they don't give off heat and may be used in ways that are quite different from ordinary electronics. Researchers before us have succeeded in creating this kind of ballistic conductor," explained Levy. "The discovery we made shows that when electrons can be made to attract one another, they can form bunches of two, three, four and five electrons that literally behave like new types of particles, new forms of electronic matter."

Read more at : https://phys.org/news/2020-02-uncovers-electronic-state.html

Original paper : *Science (2020)* DOI: 10.1126/science.aat6467

World's most powerful particle accelerator one big step closer

Scientists have demonstrated a key technology in making next-generation high-energy particle accelerators possible. Particle accelerators are used to probe the make-up of matter in colliders like the Large Hadron Collider, and for measuring the chemical structure of drugs, treating cancers and manufacturing silicon microchips. So far, the particles accelerated have been protons, electrons and ions, in concentrated beams. However, an international team called the Muon Ionization Cooling Experiment (MICE) collaboration, which includes Imperial College London researchers, are trying to create a muon beam.Muons are particles like electrons, but with much greater mass. This means they could be used to create beams with ten times more energy than the Large Hadron Collider. Muons can also be used to study the atomic structure of materials, as a catalyst for nuclear fusion and to see through really dense materials that X-rays can't penetrate. MICE have announced the success of a crucial step in creating a muon beam--corralling the muons into a small enough volume that collisions are more likely.

Read more at: https://phys.org/news/2020-02-world-powerful-particle-big-closer.html

Original paper: *Nature (2020).* DOI: 10.1038/s41586-020-1958-9

Sand dunes can 'communicate' with each other

Even though they are inanimate objects, sand dunes can 'communicate' with each other. A team from the University of Cambridge has found that as they move, sand dunes interact with and repel their downstream neighbours. Using an experimental dune 'racetrack', the researchers observed that two identical dunes start out close together, but over time they get further and further apart. This interaction is controlled by turbulent swirls from the upstream dune, which push the downstream dune away. The results, reported in the journal *Physical Review Letters*, are key for the study of long-term dune migration, which threatens shipping channels, increases desertification, and can bury infrastructure such as highways.When a pile of sand is exposed to wind or water flow, it forms a dune shape and starts moving downstream with the flow. Sand dunes, whether in deserts, on river bottoms or sea beds, rarely occur in isolation and instead usually appear in large groups, forming striking patterns known as dune fields or corridors.It's well-known that active sand dunes migrate. Generally speaking, the speed of a dune is inverse to its size: smaller dunes move faster and larger dunes move slower. What hasn't been understood is if and how dunes within a field interact with each other.

Read more at: https://phys.org/news/2020-02-sand-dunes.html

Original paper: *Physical Review Letters (2020).* doi.org/10.1103/PhysRevLett.124.054501

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From the President's desk ...

Over the past decade, I have mulled many a time over a number of singular challenges which confront us as teachers and educationists. I have also put them across in various fora. Before I describe one of these, let me state that we can view them from the perspective of an interdisciplinary field of enquiry, Physics Education Research (PER). PER has developed over the past 50 years. It has gained substantial momentum in the West but is a nascent area in India. Herein I mention one of the tasks which PER may address.

A situation which demands our attention is the existence of the *parallel education* system, what we loosely call as the "coaching industry". It is a multi-billion dollar enterprise. The Indian parent has lost faith in the traditional school system particularly in its ability to prepare their wards for competitive exams like the IIT-JEE. The "coaching centers" which "poach" on these students, involve long hours of drudgery in overcrowded halls and are expensive. Every town and city in India has "coaching *mandis*" with a conglomeration of coaching centers. The teaching is poor and at best they "teach to the test". This phenomenon is not confined to India alone. One finds these academic sweat shops in Korea, in Japan, in China – in almost all Asian countries.

In 2012 the Asian Development Bank brought out a report on this calling it the "*shadow education*" system and detailing how it has stressed society. To look closely at this K. K. Mashood (now faculty HBCSE Mumbai) and I undertook a large scale survey to test the competence of Std XII students in conceptual physics at the national level. The performance of Indian .students on internationally standardized tests was intermediate: better than similar large scale surveys in USA, but below China. However, we found a bimodality – a peak around 20% and another one at 80% which indicates that (i) the average has little meaning since the fluctuation is large and (ii) there are two Indias with those in the 80% bracket perhaps coming from pricey coaching centers. Thus the superior performance of Indian and Chinese students is not without a price. The findings were found to be sufficiently interesting that the American Physical Society readily published it in their flagship publication (*Mashood and Singh, Physical Review Physics Education Research, vo.l 15, page 010103 2019) .

The point is that we need to discuss this contentious phenomenon and perhaps to constitute a think tank to look into them. With a vast network of members we can gather data, have discussions and come up with recommendations and even evolve programmes all as part of a broad umbrella programme. In future write-ups I will allude to other challenges which we may address.

Vijay A Singh

[*https://journals.aps.org/prper/abstract/10.1103/PhysRevPhysEducRes.15.013103]

What is common between Sanskrit Prosody and Physics?

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1. Introduction

1.1. Meaning of Prosody and some related examples

The title of this article is a question and it may puzzle most of us. Some 2500[1] years ago, Acharya Pingala authored a seminal work on Sanskrit Prosody, the *Chhandahsutra*. Prosody is a study of rhythms and metres in a poetic work. We take a simple an example to illustrate its meaning for those of us who are unfamiliar with this term. Consider the following line of a Sanskrit verse (see figure 1):

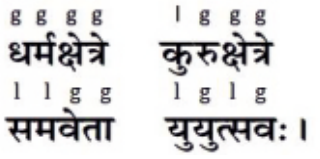

Figure 1: Sanskrit verse

In prosody, a line of any verse is characterized by a metre (*pada*) and examining only the syllabic content of the line is the *chhanda* which Pingala describes. According to Pingala, the syllables are of two durations, short and long which are called *laghu* (l) and *guru* (g) respectively. In the first line there are 4 *gurus* (g) followed by a *laghu* (l) and 3 *gurus* (g). In Western prosody, *laghu* (l) is called unstressed and *guru* (g) is called as stressed syllable. Combinatorics of *chhandas* was exhaustively developed by Pingala and resonates with similar recent works like Ising model. We explain this below.

Pingala kept the prosodic scheme simple and binary. The study of interacting systems in physics is also driven by simplicity. If one can understand a two-level system then perhaps one may be able to understand more complex systems. We cite a number of examples below.

i) In 1905, Karl Pearson coined the term "random walk" for the problem wherein a person can take at random a fixed step to the left or to the right. *ii*) The Ising spin model (1920) where the dimensionless magnetic moment s_i may either be up (+1) in the direction of the magnetic field or down (−1), opposite to the magnetic field. *iii*) The two-level system where particles may have discrete energies $+\epsilon$ or $-\epsilon$. *iv*) The HOMO-LUMO levels of molecules whose study fetched the Chemistry Nobel Prize in 1981 to Roald Hoffmann and Kenichi Fukui. *v*) The binary representation of decimal numbers and the on-off modes of semiconductor-based systems which underlie the current information age.

For the sake of concreteness, we describe the Ising model mentioned above and relate it to the questions raised by Pingala in the next section. It forms a basis for understanding magnetic properties and phase transitions. Let M be the magnetization and *n* be the total number of spins in an array. Then

$$M = \sum_{i=1}^{n} s_i \qquad (1)$$

where $s_i = \pm 1$ or $\uparrow\downarrow$and the sites are $i = 1 \ldots n$.

Notice the similarity: the spins ±1, the binary system 0 or 1, the random walk left or right, are like the *laghu–guru* syllables of Pingala's work.

[1] An examination of multiple sources dates Pingala's work to be around the 3rd century BCE.

2. Pingala's Questions and their relation to Modern Science

Pingala raised four issues concerned with prosody. We will consider them one by one below but not necessarily in the same order as Pingala posed them. We will also connect the set to some aspects of modern science.

2.1. Total number of sequences (*Sankhya*)

Given that the line consists of 8 syllables as in figure 1 above, how many different combinations N_8 of *laghus* (l) and *gurus* (g) are possible? This is called *Sankhya* and Pingala pointed out that this will be $N_8 = 2^8 = 256$. If there were n syllables, then there would be $N_n = 2^n$ possible combinations. Similarly, for the case of *n* Ising spins the total number of enumerations would be $N_n = 2^n$.

It is clear that the above enumeration grows exponentially. What is of interest is Pingala's attention to algorithmic efficiency in the evaluation of 2^n. Consider for example n = 15. Then Pingala's method is

$$N_{15} = 2N_7^2 = 2(2N_3^2)^2 = 2(2(2N_1^2)^2)^2$$

where $N_1 = 2$. This maybe written in a general form:

$$2^n = \begin{cases} 2^{n/2^2} & \text{for } n \text{ even,} \\ 2^{\left((n-1)/2\right)^2}.2 & \text{for } n \text{ odd} \end{cases} \qquad (2)$$

One can think of Pingala's power algorithm as more efficient where there is a trade-off between a larger number of multiplications of 2 by itself with a smaller number of multiplications of larger numbers. The example stated above for n = 15 takes 6 multiplicative processes using Pingala's suggestion instead of 14 multiplications of 2 by itself.

2.2. Enumeration Scheme (*Prastara*)

The next question Pingala asked was the following: what would be a systematic way of enumerating the configurations? This is called *Prastara*. According to Pingala, always adjoin *g* first to the left of the sequence and then *l*. We start with *n = 1* considering *g* first and then *l*. For *n = 2* the result is in the order *gg, lg, gl, ll*. For a line consisting of 3 syllables, his suggestion is enumerated in table 1.

This is equivalent to binary enumeration of decimal numbers where we assign the number 1 to *l* and 0 to *g*. Let us reverse the order of symbols in column 3 to get column 4 of table 1. It is obvious that the column 4 represents binary form of decimal numbers. We note that the order in column 3 is called *colex−order* and is also a perfectly respectable binary representation of decimal numbers.

Position of arrangement	Metre	Symbol	Reverse (Binary)	
1	ggg	000	000	0
2	lgg	100	001	1
3	glg	010	010	2
4	llg	110	011	3
5	ggl	001	100	4
6	lgl	101	101	5
7	gll	011	110	6
8	lll	111	111	7

Table 1: Enumeration with n=3. To relate it to the modern binary representation, we substitute 0 for g and 1 for l and reverse the sequence in column 4.

2.3. Location of a given Metre (*Uddista*) and conversely the Metre for a given Location (*Nasta*)

Assuming that for n = 3 the 8 sequences have not all been listed, Pingala spelt out the method for finding the exact position, given a sequence. For example- *llg* without listing out all 8 configurations. The answer is position number 4 (see table 1). This exercise is called *Uddista*.

We can reverse the question: given a position number from the list for n = 3, say 6, Pingala gave a solution for finding the precise sequence. In our case, the sequence for the position 6 is *lgl* (see table 1). This process is called *Nasta*. We shall not describe *Nasta* and *Uddista* in this article. But they are important issues and for large number of sequences or Ising spins efficient search algorithms are required. In the 1980s, Robert Pearson and collaborators built the Ising model processor to evaluate by brute force the partition function of the three-dimensional Ising model with N × N × N sites with N = 64, 128, . . . 512, 1024 etc. An efficient book keeping exercise, similar but not identical to *Uddista* and *Nasta* is called for in order to carry out this exercise successfully.

2.4. Laghu–kriya

The question that concerns us the most is the following: In the first line of Fig. 1, there are 7 *gurus* (*g*) and 1 *laghu* (*l*). How many different ways can you write it? A little reflection makes it clear that the answer is 8 since the *laghu* can go in one of the 8 places. This problem was called *Laghu − Kriya* and for the general case Pingala resorted to the rather interesting exercise of recursion. He suggested the following formula:

$$N_{n,m} = N_{n-1,m-1} + N_{n-1,m} \qquad (3)$$

where *m* is the number of *laghus* in a metre of length *n*.

Let us consider *n = 3*, where $N_{3,m}$ is the number of combinations with *m = 0, 1, 2, 3*. This is listed in table 2.

Symbol	*Laghu*	Number of combinations	Combinations
$N_{3,0}$	0	1	*ggg*
$N_{3,1}$	1	3	*ggl, glg, lgg*
$N_{3,2}$	2	3	*llg, lgl, gll*
$N_{3,3}$	3	1	*lll*

Table 2: An example of Laghu-kriya for n=3

We can now calculate for n = 4 from n = 3 using eqn.3 (see table 3):

Number of *Laghus*	Recursion formulas	Value
0	$N_{4,0}=N_{3,-1}+N_{3,0}$	0+1=1
1	$N_{4,1}=N_{3,0}+N_{3,1}$	1+3=4
2	$N_{4,2}=N_{3,1}+N_{3,2}$	3+3=6
3	$N_{4,3}=N_{3,2}+N_{3,3}$	3+1=4
4	$N_{4,4}=N_{3,3}+N_{3,4}$	1+0=1

Table 3: An example of *Laghu-kriya* for n = 4. We take $N_{3,-1} = 0$

Continuing this process, we can find the value of $N_{5,2}$ from table 3 and eqn.3:

$$N_{5,2} = N_{4,1} + N_{4,2} = 4 + 6 = 10$$

We are now used to the binomial expansion for calculating $N_{5,2}$ which is the same as ${}^5C_2$. Also, we can observe that the recursion formula helps us create the famous Pascal's triangle dated seventeenth century, some 2000 years after Pingala's work. It is interesting to note that the tables based on this exercise were called *Meru-Prastara* or the Staircase of Mount Meru.

Using the recursion relation stated by Pingala we can calculate the probability of finding a system with average magnetization m. From eqn.1:

$$m = \frac{M}{n} \tag{4}$$

Note that to obtain *m* we need to know either the number of up spins ($n(+1)$) or of down spins ($n(-1)$) since, $n(+1) + n(-1) = n$.

$$m = \frac{n(+1) - n(-1)}{n} = \frac{n - 2n(-1)}{n}$$

The number of configurations which yield *m* is given by the *Laghu-Kriya* exercise of Pingala for $N_{n,p}$ with the down spin number $n(-1)$ replacing the number (p) of *laghus*. The ratio of the number of degenerate configurations (*laghus* or equivalently $n(-1)$) to the total number 2^n (*Sankhya*) yields the probability of finding a configuration with a certain average magnetization. Using the language of statistical mechanics, we can say that $N_{n,p}$ gives the number of microstates for a given macrostate (n,p) and its logarithm is related to the entropy.

3. The work of Virahanka, Fibonacci and Golden ratio

A thousand years after Pingala, Virahanka carried out an interesting extension of Pingala's work. He suggested that we consider the duration of *laghu* (*l*) to be 1 unit of time and of *guru* to be say 2 units of time. We now ask the question: how many different combinations are possible given a total of 3 units of time? The answer is 3 with the combinations being *lll*, *gl* and *lg*. We extend this line of inquiry in table 4. We hasten to add that not all combinations of a given time duration would produce melodious verses.

Time (s)	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Combinations	l	ll g	lll lg gl	llll lgl llg gll gg	lllll lgg glg ggl llllg llgl lgll glll	llllll … ggg	lllllll … gggl
s_t	1	2	3	5	8	13	21
Ratio		2	1.5	1.66	1.6	1.625	1.615

Table 4: Combinations for fixed time t units. The numbers in the last row approximate the golden ratio.

In table 4, we calculate combinations (s_t in row 3) for a fixed time (t). The numbers in the last row (row 4) are the ratios $(s_{t+1})/s_t$ where t = 1, 2, ... The ratio converges to 1. 618.. and is known in the west as the golden ratio φ. The numbers in row 3 (1, 1, 2, 3, 5, 8, 13 . . .) which is due to Virahanka (circa 7th century) is called the Fibonacci sequences after the Italian mathematician Fibonacci (13th century).

$$s_{t+1} = s_t + s_{t-1}$$

A word about the golden ratio

The golden ratio plays an important role in western aesthetics. Apparently, Leonardo da Vinci was enamored of it. His Vitruvian man is proportioned as per φ and so is Mona Lisa's face in the famous painting. It is found in classical architecture. It is a figure of merit for the fashion industry. It has been popularized by Dan Brown in his books.

Popular as it is in western aesthetics, the golden ratio is not commonly encountered in science. This is unlike the transcendental irrational numbers π and e. But recently, in 2016, Pathak and Singh discovered that they occur with unfailing regularity in centre of mass problems. When a smaller self-similar even-sided polygon is excised from the larger polygon the latter would stand balanced on the edge only if the ratio of the sides of the two polygons is the golden ratio. For any other ratio the center of mass (which indicates the balance point) is either inside the larger polygon or outside the latter implying that the polygon is unstable. The authors noticed the occurrence of the golden ratio in circles, rhombuses, rectangles etc.

4. Discussions

One can extend the combinatorics of the two-level system to multi-level systems. In a masterful work, *Sangitaratnakara*, on the combinatorics of Indian Classical music, *Sarangadeva* (13th century) spelt out six combinatorial tools (*Pratyayas*) concerned with the seven notes called *tana* (*S, R, G, M, P, D, N*) which are similar to the ones employed in Western music and 4 rhythmic elements called *tala* (*druta, laghu, guru, pluta*). The *tana* sequences were produced such that no two notes repeat - all elements in a sequence are distinct. The *tala* sequences with 4 elements was extended to give generalized Fibonacci series, similar to the method in section 3. In biology, we have a '4-level' system (the bases A, T, G, C) with a sequence size fixed to the value 3 (Codon size). This yields $4^3 = 64$. Given that one has 20 amino acids, physicist George Gamow was able to guess correctly that the codon size was 3. A size of two would yield at best 16 amino acids and one of 4 with 256 possibilities would be overkill. In condensed matter physics, the simplest many body Hamiltonian (called Hubbard Hamiltonian) deals with sites which can have one up spin electron, one down spin electron, two paired electrons or no electrons thus yielding a 4-level system with energies $-\epsilon$, $-\epsilon$, U and zero (both E and U being positive).

The questions raised and answered by Pingala are also some (but by no means all) of the questions raised in physics. The following points, which are hallmarks of good science, are worth noting:

The practice of cataloguing and classifying is evident in Pingala's work.

The use of the method of recursion in *Laghu − Kriya* (see eqn. 3). This is perhaps the earliest instance of a technique indispensable to mathematics and physics.

The sensitivity to algorithmic efficiency when it comes to calculation as in *Sankhya* (Sec.2.1) as also for search and identification as in *Uddista – Nasta* (Sec. 2.3).

The mathematical tradition in India never really died. This is unlike the Babylonian or the Mayan or the Egyptian. The combinatorial work of Pingala was carried forward by a long list of illustrious successors till the advent of the British and the Colonial education. These successors lived in different parts of the Indian sub-continent. The partial list in the references below attests to this. One can also see evidence of continuity and diversity in other areas of Indian mathematics: geometry, trigonometry and algebra. Remarkably this tradition was oral, being handed down through generations.

Acknowledgements: This work was prompted by requests from some IAPT members at the Annual IAPT Convention. Discussions with Prof. P. P. Divakaran are gratefully acknowledged but he is not responsible for errors, if any, in this manuscript. We acknowledge support of the Government of India, Department of Atomic Energy under the National Initiative on Undergraduate Science (NIUS) programme of HBCSE (Project No. R-R&D-TFR-6.04-0600)

References:

1. One of us (VAS) has checked the sources meticulously. Nevertheless, if there are errors, we apologize and would welcome corrections by mail (email: physics.sutra@gmail.com). For Indian sources, we suggest the 4 secondary references below. They reference and partly cover the works of Pingala (Chhandahsutra **c. 300 BCE), Bharatamuni (**Natyashastra **c.200 BCE), Virahanka (c. 650 CE), Halayudha (**Mrtasanjivani **c. 950 CE), Sarangadeva (**Sangitaratnakara **c.1225 CE), Narayan Pandit (1356 CE) and numerous others.**

(a) Jayant Shah, ""*A History of Pingala's Combinatorics"*, Ganita Bharati, vol. 35 (3-4)(2013).

(b) P. P. Divakaran, "*The Mathematics of India- Concepts, Methods, Connections"*, Springer, Hindustan book agency (2018).

(c) Raja Sridharan, R. Sridharan and M. D Srinivas, "*Combinatorial methods in Indian Music: Pratyayas in Sangitaratnakara of Sarangadeva"*, Studies in the History of Indian mathematics, Hindustan book agency (2010)

(d) R. Sridharan and K. Subramaniam, "*Representations of Numbers and the Indian Mathematical Tradition of Combinatorial Problems"*, The First Source book on Asian Research in Mathematics Tradition, Information Age Publishing, pg 1749 (2015).

2. The references to Fibonacci (c.1200 CE), Pascal (1665 CE), Random Walk (1905 CE), Ising model (1920 - 1925 CE) and others may easily be accessed and verified from textbooks and the internet. Two that may not be easily accessible are mentioned below.

(a) R. Pearson, " *First Results for the Ising Monte Carlo Processor"*, Physics Reports Vol. 103, 185 (1984). This is mentioned in passing in Section 2.3 on *Uddista* and *Nasta*.

(b) Praveen Pathak and Vijay A. Singh, "*Yet another encounter with the golden ratio: balancing laminar bodies on the edge"*, European Journal of Physics, Vol. 37 (2016). This is mentioned in Section 3 on the Virahanka sequence.

Report (RC-02)

Guest Lecture-cum Workshop on

Physics for Creativity and Innovation

Date: 19th October, 2019

Venue: Department of Physics, Lovely Professional University, Phagwara (Punjab)

Number of participants: 50 (Teachers), 450 (Students)

Resource person: Prof. H C Verma, Ex-Professor, Department of Physics, IIT Kanpur

The main objective of this Guest Lecture-cum-workshop was to enjoy the world of science, inculcate scientific temperament and to satisfy the curiosity of the young minds. Head of School (HOS) of Chemical Engineering and Physical Sciences (SCEPS) and HOD, Department of Physics welcomed the resource person. In his welcome address, HOS underlined the importance of such **Guest Lecture-cum-workshops** in the context of learning beyond the classroom teaching.

Prof. Verma talked on "**Reaching the unreached: My experiences with online courses".** He talked about the various experiences with students, he had during his stint, first in a college in Patna, Bihar and later in IIT, Kanpur as a Professor of Physics, that led him to write two volumes of the book, concepts of Physics. While writing these volumes, that took eight long years (1984-1992), he specifically kept the psychology of Indian students in his mind, so that learning of subject of Physics becomes enjoyable rather than an awful experience for them. Speaking about the state of education, he mentioned that three types of educational institutions exist in our country. The first are the ones in which education is being imparted and evaluation is being done honestly and in true letter and spirit. From these institutions, top class scientists, engineers and technocrats emerge that run the state of affairs of our country. In the second type of institutions, the teaching process and evaluation system is on the lower side while in the third type of institutions, only examinations take place after admission process i.e. the classroom teaching is virtually absent. He emphasized the fact that the development of our country, in various frontier areas of science and technology, such as space, medicine, artificial intelligence, nuclear power should be through the rigorous training imparted to the students in our educational institutions. In his opinion, the sense of curiosity among little children is being suppressed in their early formative years in their schools.

After the lecture he demonstrated some experiments like; holding a rod, colours emerging out from a cello tape, dipping a ball in water and finding the resistance of a bulb. Through these experiments, the important topics such as centre of gravity, moment of inertia, optics, fluid mechanics & electricity and magnetism were covered.

Rajesh Kumar
Convener

Physics Expo -2020

Date : February 11, 2020

Venue : Physics Deptt., Hans Raj Mahila Maha Vidyalaya (HMV), Jalandhar

Organizers: HMV Jalandhar and IAPT RC-2

Resource Persons: Dr Jaswinder Singh EC Member, Dr Major Singh, Sh Prem Singh

Participants: 240 students from 22 schools and 120 students from 16 colleges

IAPT RC-2 and Physics Dept. of Hans Raj Mahila Maha Vidyalaya (HMV), Jalandhar jointly organized Physics Expo 2020. The event commenced with Principal Dr. (Mrs.) Ajay Sareen welcoming the guests of the event, Dr. Major Singh, President, RC-2 and Sh. Jaswinder Singh, National Awardee and Executive member of IAPT. Mrs. Meenakshi Sayal, Convener, said that the motive behind conducting the competition was to instill passion for science among students. Mrs. Sareen inspired the students to realize that science is not only the most existing and rewarding human enterprise but is the most important vehicle of national development.

Dr. Major Singh motivated the students to come up with

and make creative use of Physics laws and concepts. Dr. Jaswinder Singh gave an insight on basic concepts of science and mathematics with the help of his laboratory on wheels. It was an interactive session with active involvement of students and teachers. Students from the districts of Jalandhar, Patiala, Ludhiana, Nawanshehar, Gurdaspur and Ferozepur participated in various Inter School and Inter College Competitions.

The students participated in events like Science Exam-plum still and working models "Science for Sustainable Development", Poster making on the theme "Physics in daily life", Quiz Competition and Essay Writing competition on the topic "Physics and its importance in daily life." The students participated with their full intellectual strength and had an enriching experience.

The competitions were judged by distinguished professionals, Dr. (Mrs.) Neha (KRM, DAV College, Nakodar) Sh. Rakesh Sharma (Sai Dass School, Jalandhar), Sh. Ashish Kumar (Police DAV School, Jalandhar), Dr. (Mrs.) Sonia Mago (Swami Sant Dass School), Mrs. Komal Saini (GTB Khalsa

Colege, Dasuya), Kezia (KMV College, Jal.).

In Quiz Competition (In School Category, Police DAV Public School, Jalandhar won first prize, Trinity Collegiate School bagged second prize and Dayanand Model school won third prize. In college category, Govt. College of Science Edu. & Res. Jagraon won Ist prize, DAV College Jalandhar won second prize and KMV College Jallandhar won third prize. In poster making competition DRV DAV centenary school won first prize, HMV collegiate Sen. Sec. School won second prize and Sainik School, Kapurthala won third prize. In college category Guru Teg Bahadur Khalsa College for women Dasuya bagged first prize, Govt. college of Science Edu. & Res. Jagraon bagged second prize and HMV College won third prize. Govt. College of Science Edu. & Res. also won consolation prize. In Essay Writing Competition (School category), Sainik School Kapurthala won first prize, Anand Public Sen. Sec. School Kapurthala won second prize. DRV DAV Centenary Public School, Phillaur also won second prize and DAV Centenary Collegiate Sen. Sec. School, Phillaur won third prize. In college category, Govt. College of Science Edu. & Res. Jagraon won first, GTB Dasuya won second and NJHS Kapurthala won third prize. In model making competition Police DAV Public school, Jalandhar won first prize, DC Model International School won second prize and Sain Dass A.S. Sen. School won third prize. Students of Dayanand Model School, Jalandhar won consolation prize. In college category HMV College, Jalandhar won first position, Govt. College of Science Edu. & Res. Jagraon won second and KRM DAV College Nakodar won third prize.

Vote of thanks was given by Mrs. Saloni Sharma, Head of Physics deptt.

Meenakshi Sayal
Convener

Report (RC – 06)

Varadi Anveshika Science Workshop

Date: February 10, 2020
Venue: St. Joseph convent school, Pratapnagar, Jaipur,
Target Audience: 300 plus student of IX and XI standard and faculty members.
Invited speaker: Dr. G.S. Menaria, coordinator anveshika.

The objective of the workshop was to experimentally demonstrate the concept of physics in a joyful way beyond the classroom teaching. Principal Dr. S.D. Sharma welcomed the resource person. In his address, he emphasized & underlined importance of learning by doing.
After the welcome address, demonstration on various topics of curricula of IX to XI class like equation of motion, law of conservation of energy, transmission of waves, reaction time, measurement of height of distant object, law of conservation of linear momentum, undamped oscillation, laws of reflection, total internal reflection, equilibrium of body, black body radiation, thermal expansion, faradays & Lenz law and magnetic field line was given by Dr. Menaria in an active engagement interactive way. With each demonstration mathematical explanation was discussed as per query and curiosity.

In his speech,vice principal Dr. S.K. Jain spoke on importance of such demonstrations in the understanding of the concepts of physics.

The workshop ended with a vote of thanks by convener of workshop S.R. Godara.

S.R. Godara
HOD Chemistry

PRL IAPT Dr. Vikram Sarabhai Lecture

Date: - January 27, 2020

Venue: - K. R. Ramanathan Auditorium, Physical Research Laboratory, Ahmadabad

Invited Speaker: - Dr. R. D. Deshpande, Chairman, Geosciences Division PRL Ahmadabad

Topic:-*Water resources of India: challenges and solutions*

This is an annual public-lecture series that has been initiated last year by IAPT with an active support from Physical Research Laboratory, Ahmadabad. The second annual lecture organized as above was attended by a good audience of students, teachers, scientists and academicians, and a live streaming of the event was made available through the PRL website.

The programme began with words of welcome by the Dean of PRL, Prof. P. Janardan. He remembered, on this occasion, the visionary scientist Dr. Vikram Sarabhai whose birth centenary is being celebrated currently. Prof. K.N. Joshipura GS IAPT thanked the Director, PRL Dr. Anil Bhardwaj for his active interest in facilitating this important out-reach programme. The GS highlighted the national and regional activities of IAPT, introduced the Speaker Dr. R. D. Deshpande to the audience, and gave him a warm welcome with an attractive plaque memento.

Dr. R. D. Deshpande, a geoscientist, is actively working in the area of isotope hydrology. It was very interesting to listen to the views of a hydrologist on the water woes of our country.He presented in his lecture a large canvas of issues and problems of water resources in our country, and offered solutions. The well-known global hydrological or water cycle is being taught at school levels in a formal way, but one gets the true picture of its all-round vital importance when the quantitative details are highlighted, as in this lecture. Out of the annual rain-water available to us on land in India, about 42% returns to the atmosphere due to evapo—transpiration processes, and this is like Nature's tax on the most essential commodity it provides to us, the living beings. India is one of the largest users of groundwater, and in Ahmedabad and many other towns west of the city, the groundwater being consumed today is around 20,000 years old. That means a natural resource which took thousands of years to build up is being consumed so rapidly, in just a few decades....! Water budget of India was neatly presented in the lecture.

Dr. R. D. Deshpande

There are challenges posed by the complex relationship amongst water resources, social health and economy of our country. Added to all this is the hydrological response to climate change, engineered interventions and anthropogenic perturbations, said the Speaker. Hydrological responses to natural and man-made changes are slow and sluggish, and the effects are often noticed when it is late. Towards the solutions of the problems, Dr. Deshpande emphasized on two aspects; (i) better management of not only supply but also demand of water at different levels, and (ii) public sensitization to the issues and problems of resources and utilization of water in India. The lecture was followed by a question-answer session. Prof. Rajshree Jotania, Secretary RC-7 proposed a vote of thanks. As it happens often, there was a good interaction of interested people with the Speaker after the formal programme was over.

K. N. Joshipura
General Secretary

Workshop on 'Astronomy and Sky Observation'

Date : February 8-9, 2020
Participants : 120 college students, 15 faculty members and 25 social activists
Resource Persons : Dr. S. B. Mane, Dr. Sanjay Nitve, Bhaskar Sadakale, Prof. P. H. Patil, Sanjay bansode, Dr. Nitin Shinde
Venue :Sagareshwar Deer Santuary, Sagareshwar, Dist: Sangli
Organizer : Department of Physics, K.B.P. College, Islampur and IAPT RC-08

A two day Workshop on Astronomy and Sky Observation was organized at Sagareshwar Deer Santuary, Sagareshwar, Dist: Sangli [Maharashtra] by Karmaveer Bhaurao Patil College, Islampur in association with IAPT RC08.The inaugural function was presided over by Mandar Wartak, Yashwantrao Chavan Academy co-ordinator.

Mr. Bhaskar Sadakale presented a demonstration regarding scientific outlook, with scientific and technical experiments he spoke on the misbelieves in the society. Dr. Nitin Shinde took a tour of universe explaining the astronomical concepts such as black hole, nebula, constellations, zodiac signs, meteorites, gravitational waves, eclipse etc. He also spoke on the misbelieves created by astrologers and stressed the need to create awareness about astronomy and not about astrology. Dr. Sanjay Nitve, well known gynecologist made clear the medical science of the human being and misbelieves created by pseudoscience community about full moon, new moon, eclipse etc.

During night on 8th Feb. 20 and early in the morning on 9th Feb. 20, sky observation session was conducted by Dr. Nitve, Prof. P.H.Patil, Dr. NitinShinde. With the help of Dobsonian Telescope, participants observed phases of Venus, craters on moon, moons of Jupiter, Saturn ring, Nebulae, Dual star, etc. Participants were very much excited after observing the artificial satellites, zodiac signs, Jupiter, Venus, Saturn, Mars with naked eye..

Pradnya Vibhute
Co-Ordinator

Detailed Summary of National Standard Examinations - 2019

Exam	Enrolment	Average of Top Ten Scores	MI	MAS	Students above MI	Students above MAS	Students shortlisted for INO-2020
NSEP	53913	213.10	170	106	292	2725	458
NSEC	49644	222.40	177	111	699	4612	802
NSEB	34285	203.40	162	101	106	1646	335
NSEA	17516	A- 193.5	154	96	196	1439	331
		B- 182.4	145	91	66	667	257
NSEJS	42009	199.60	159	99	140	983	300
Total	**197367**						

B.P. Tyagi
NSE Coordinator

Workshop on Innovative Physics Experiments

Venue: Jabalpur Engineering College, Jabalpur, Madhya Pradesh,

Date: 28/1/2020

Organized by: Department of Applied Physics, Jabalpur Engg. College, Jabalpur and RC-09

Resource Persons:

1. Dr. Kamal Kumar Kushwah, Asst. Professor, Department of Applied Physics, Jabalpur Engg. College, Jabalpur, MP, India
2. Dr. P. K. Dubey, Former Head of Department, Physics, PMB Gujrati Science College, Indore and EC member, IAPT.

Coordinator: Dr. S.K. Tiwary, Prof. & Head, Department of Applied Physics, JEC, Jabalpur

Number of Students: 220, B tech students

This was an initiative of Department of Applied Physics and RC-09 under micro action plan of Department of Technical Education, Govt. of Madhya Pradesh through Technical Education Quality improvement program (TEQIP-III). The aim of the program was to develop interest in physics among the students through low cost experiments.

The program started with the blessings of "Maa Saraswati" by lighting the lamp & Saraswati Vandana.

Dr P.K. Dubey the expert was welcomed by Principal S.S.Thakur.

The session started with some hands-on experiments by Dr. P.K. Dubey. He demonstrated around 25 experiments, especially from magnetism, electrostatics, mechanics etc.

Dr. K. K. Kushwah demonstrated some experiments mainly from optics and mechanics. Around 50 innovative physics experiments were demonstrated, some of which are listed below:

- Demonstration of transverse waves and propagation.
- TIR through bouquet of fiber.
- Experience of 1 Newton force.
- Reflection, Refraction of light waves.
- Balancing of torque.
- Conservation of momentum
- Faraday's law, Lenz law, free energy devices, magnetic elevation, center of mass etc.

These experiments were appreciated well. The two way interactive approach was adopted in demonstrations. During the demonstrations students were allowed to do the experiments themselves. The queries of the students were also answered. Dr. Sujeet Kumar Mahobia, asst prof proposed the vote of thanks.

K.K. Kushwah
Joint Secretary

NEWS

1. Release of the book …

"Does Quantum Physics Tell Us the Truth? (In Search of Reality)"

In a function at IMCC, Pune on Feb. 14, 2020, the book "Does Quantum Physics Tell Us the Truth? (In Search of Reality)" by **Dr. Y.R. Waghmare**, former Professor at IIT Kanpur and former President of IAPT was released digitally by AVM Bhooshan Gokhale. Dr. Anil Kakoadkar, former Chairman, Atomic Energy Commission, has written the Foreword of the book.

2. IAPT life member wins award

Dr. Lalit Kishore, a life member of IAPT, an educator and researcher at Disha-A Resource Centre for Multiple Disabilities in Jaipur, has won the Commonwealth Award – The Findel CASTME Community Award 2019 - instituted by commonwealth Association of Science, Technology and Mathematics Educators (CASTME) for his innovative work in science education for children with the learning disability of dysgraphia which is a neurological disorder.

Dr. Kishore' entry "Adjusting Science Instruction to Needs of Children with Specific Learning Disabilities: Designing and Clinical Trialing of Select Lessons for Standardization of Visual Support Material" was chosen for the award. Last year too Dr Kishore had won this prestigious award for his innovative work in the area of language of mathematics.

3. Congratulations

Dr. Suresh Chandra, Professor of Physics at Amity Center for Astronomy and Astrophysics, Amity Institute of Applied Sciences, Amity University, Noida, has been elected as President of the Section "Physical Sciences" for the 108th Session of the Indian Science Congress during the year 2020-2021.

Dr Suresh Chandra is a very senior member of IAPT (since its very early days) .

List of National Toppers (Top 1%) of NSEP- 2019

held on 24.11.2019 at 1590 centres

Roll No	Name of Student	Gender	Centre Code	Name of Centre	City
AP19100523	LABEEB AHSAN	M	APS0004	SRI CHAITANYA VIDYA NIKETHAN	VISAKHAPATNAM
AP19100650	VAVILAPALLI SAINATH	M	APS0005	SRI CHAITANYA JR COLLEGE	VISAKHAPATNAM
AP19100654	P. HARSHITH ROYAL	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100656	R. SAI DHEERAJ	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100657	VENKATA KRISHNA . B	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100663	G. VISWAZ	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100675	CH. GUNAVARDHAN REDDY	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100679	DRONADULA TEJA	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100680	C. BERSILIN	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100681	BAGATHI SHIV KIRAN	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100697	B. SAI BHANU TEJA	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100701	KARTHEEK SAI. K	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100704	A. VARSHITH	M	APS0006	NARAYANA EM HIGH SCHOOL	NELLORE
AP19100754	A.P. SWATHI LAKSHMI	F	APS0010	SPACE CENTRAL SCHOOL	SHRIHARIKOTA
AP19100755	B.ROHIT	M	APS0010	SPACE CENTRAL SCHOOL	SHRIHARIKOTA
AP19100921	MEKA SAI MUKUND	M	APS0017	SRI PRAKASH JUNIOR COLLEGE	PAYAKARAOPETA
AP19100922	G N S A SIVA KISHORE	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100923	LAGUDU SREE TEJA VARDHAN	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100933	R GURU PRAKASH NAIDU	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100947	SUVVARI VENKATA SAI	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100948	GANTA AMRUTH	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100953	RAYUDU VENKATA SAI AKHIL	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100965	POTNURU GOPIRONITH	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100966	D ALEX	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100975	SISIR KUMAR PADHI	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100976	VAVILAPALLI BALAJI SIDDARDHA	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100977	MARNI VEERA VENKATA RAMA AKHIL	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19100997	SUVVARI JASWANTH	M	APS0018	NARAYANA JUNIOR COLLEGE	VISAKHAPATNAM
AP19101119	GANGULA BHUVAN REDDY	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101230	LANDA JITENDRA	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101231	MUPPARAJU SAI CHAITANYA	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101252	DANDA SAI PRAVALLIKA	F	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101264	ENKOLLU SUDHEER KUMAR	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101265	KANDULA YASWANTH	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101269	RAGALA ABHISHEK	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101286	NANNAPANENI YASASWI	F	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101297	PAIDI VENKATA GANESH	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101308	NAGELLI NITHIN SAI	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101342	VARADA JASWANTH NAIDU	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101451	VADDI ADITYA	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101562	CHALLAGULLA SAI SIDDARDHA	M	APS0020	SRI CHAITANYA JUNIOR KALASALA	VIJAYAWADA RURAL
AP19101767	VENKATA KEERTHAN NIMMALA	M	APS0025	HAPPY VALLEY SCHOOL	VIJAYAWADA
AP19101968	V BHARATH SIMHA REDDY	M	APS0027	NARAYANA EM SCHOOL	TIRUPATI
AP19101975	K TAHIR MOHAMMED	M	APS0027	NARAYANA EM SCHOOL	TIRUPATI
AP19102126	P. NEERAJ	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102129	A. PRADEEP KUMAR	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102130	P. RAMNIVAS	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102134	M. DIVYA TEJA	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102139	B. VENKATA SOMA SEKHAR	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA

AP19102140	B. VAMSI KRISHNA	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102141	B. VENKATA SAI KIRAN	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102142	N. ABHILOKESH	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102144	M. ASWIN KARTHIK YADAV	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102146	G. MANOJ	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102147	M. S. V SAYI TEJA REDDY	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102148	B. RUTHVIK KUMAR REDDY	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102150	G. VENKATA SRAVAN KUMAR	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102151	B. AARSHA SAI	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102246	M. CHANDRA SEKHAR REDDY	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102250	V. KRISHNA TEJA SANDEEP	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102254	V. SAI SIDDHARTHA	M	APS0033	NARAYANA CO SCHOOL	VIJAYAWADA
AP19102567	BALE TEJA RAMA CHANDRA MURTHY	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102579	DESAI DIVYESWAR REDDY	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102584	GUTHI CHAITANYA SINDHU	F	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102634	KAPELLI YASHWANTH SAI	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102751	NARNE AVINASH CHOWDARY	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102774	PULI JANAKI RAM	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102795	THOTAHONEY SAHITH	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102807	THADAVARTHI VISHNU SRI SAI SANKAR	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102818	THAMMANABOINA MANI VENKATA KRISHNA	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19102840	VARANASI VACHAN SIDDHARTH	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19103233	BUDDA MOHAN CHANDU	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19103255	CHILUKURI MANI PRANEETH	M	APS0047	SRI CHAITANYA GIRLS JR COLLEGE	VIJAYAWADA
AP19103432	KRISHNA VENKAT CHERUKURI	M	APS0048	FIITJEE JUNIOR COLLEGE	VIJAYAWADA
AP19103736	CH.K. SIDDHARTHA	M	APS0054	NARAYNA E.M SCHOOL	VISAKHAPATNAM
BR19107214	AHIL KHAN	M	BRS0008	PATNA SCIENCE COLLEGE	PATNA
BR19107274	SHIVAM SANJAY	M	BRS0008	PATNA SCIENCE COLLEGE	PATNA
CG19109782	PURUSHOTTAM SHARMA	M	CGS0001	KRISHNA PUBLIC SCHOOL	RAIPUR
CG19109803	PRANJAL UPADHYAY	M	CGS0004	DELHI PUBLIC SCHOOL	BHILAI
CG19109854	SHASHWAT CHAKRABORTY	M	CGS0004	DELHI PUBLIC SCHOOL	BHILAI
CG19110428	NISHANT THAKRE	M	CGS0025	DRONACHARYA PUBLIC SCHOOL	RAIPUR
CH19111202	SARTHAK KOHLI	M	CHS0003	AJIT KARAM SINGH INTERNATIONAL SMART SCHOOL	CHANDIGARH
CH19111490	PULKIT SHARMA	M	CHS0004	SHIVALIK PUBLIC SCHOOL	CHANDIGARH
CH19111537	GURARMAAN SINGH PANJETA	M	CHS0004	SHIVALIK PUBLIC SCHOOL	CHANDIGARH
PB19111638	HARSHIT BANSAL	M	CHS0008	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 47	CHANDIGARH
CH19111652	MIHIR	M	CHS0008	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 47	CHANDIGARH
CH19111661	MADHAV GOYEL	M	CHS0008	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 47	CHANDIGARH
DL19111829	SUNIDHI SINGH	F	CHS0008	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 47	CHANDIGARH
PB19112165	DEVANG SINGLA	M	CHS0008	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 47	CHANDIGARH
CH19112247	MANAS JAIN	M	CHS0009	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 31	CHANDIGARH
CH19112378	KUNWAR PREET SINGH	M	CHS0009	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 31	CHANDIGARH
HR19112401	KARTIK SHARMA	M	CHS0009	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 31	CHANDIGARH
UK19112405	ARYAMAN MIHIR SETH	M	CHS0009	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 31	CHANDIGARH
HR19112406	ARYAN SHARMA	M	CHS0009	KENDRIYA VIDYALAYA CHANDIGARH SECTOR 31	CHANDIGARH
PB19112429	GOPESH GABA	M	CHS0010	KENDRIYA VIDYALAYA CHANDIGARH OCF	CHANDIGARH
HR19112431	PRATHAM JAIN	M	CHS0010	KENDRIYA VIDYALAYA CHANDIGARH OCF	CHANDIGARH
PB19112448	MOHIT GARG	M	CHS0010	KENDRIYA VIDYALAYA CHANDIGARH OCF	CHANDIGARH
PB19112449	GAUTAM BANSAL	M	CHS0010	KENDRIYA VIDYALAYA CHANDIGARH OCF	CHANDIGARH
PB19112576	PARSHANT ARORA	M	CHS0010	KENDRIYA VIDYALAYA CHANDIGARH OCF	CHANDIGARH
DL19112639	ADITYA SINGH	M	DLS0002	DELHI PUBLIC SCHOOL R K PURAM SECTOR12	NEW DELHI
DL19112705	ANANT LUNIA	M	DLS0002	DELHI PUBLIC SCHOOL R K PURAM SECTOR12	NEW DELHI
DL19112756	ADITYA AGRAWAL	M	DLS0002	DELHI PUBLIC SCHOOL R K PURAM SECTOR12	NEW DELHI
DL19112828	JAIVARDHAN SINGH	M	DLS0002	DELHI PUBLIC SCHOOL R K PURAM SECTOR12	NEW DELHI
DL19112870	CHAXU	M	DLS0003	REMAL PUBLIC SCHOOL	NEW DELHI
DL19112914	JIVESH KESAR	M	DLS0003	REMAL PUBLIC SCHOOL	NEW DELHI

DL19112917	GAUTAM GOSAIN	M	DLS0003	REMAL PUBLIC SCHOOL	NEW DELHI
DL19113004	SRUGVI GUPTA	F	DLS0004	NEW SAINIK PUBLIC SCHOOL	NEW DELHI
DL19113128	VEDANTA MOHAPATRA	M	DLS0006	LAL BAHADUR SHASTRI SENIOR SECONDARY SCHOOL	NEW DELHI
DL19113146	SOUMIL AGGARWAL	M	DLS0006	LAL BAHADUR SHASTRI SENIOR SECONDARY SCHOOL	NEW DELHI
DL19113155	GURKIRAT SINGH	M	DLS0006	LAL BAHADUR SHASTRI SENIOR SECONDARY SCHOOL	NEW DELHI
DL19113171	PRANAY PARASHAR	M	DLS0006	LAL BAHADUR SHASTRI SENIOR SECONDARY SCHOOL	NEW DELHI
DL19113343	PRATEEK MISHRA	M	DLS0006	LAL BAHADUR SHASTRI SENIOR SECONDARY SCHOOL	NEW DELHI
DL19113364	MAYANK PANT	M	DLS0007	RYAN INTERNATIONAL SCHOOL	DELHI
DL19113759	KUMAR SATYAM	M	DLS0013	KENDRIYA VIDYALAYA DWARKA SEC.5	NEW DELHI
DL19113855	SOMADITYA SINGH	M	DLS0015	S M ARYA PUBLIC SCHOOL	NEW DELHI
HR19113874	DHRUV TYAGI	M	DLS0015	S M ARYA PUBLIC SCHOOL	NEW DELHI
DL19113903	MANPREET SINGH	M	DLS0015	S M ARYA PUBLIC SCHOOL	NEW DELHI
DL19114123	DEVANSH KUMAR JHA	M	DLS0015	S M ARYA PUBLIC SCHOOL	NEW DELHI
HR19114328	UJJWAL	M	DLS0015	S M ARYA PUBLIC SCHOOL	NEW DELHI
DL19114783	RTYA SAWHNEY	F	DLS0030	DELHI PUBLIC SCHOOL VASANT KUNJ	NEW DELHI
DL19114788	CHINMAY MITTAL	M	DLS0030	DELHI PUBLIC SCHOOL VASANT KUNJ	NEW DELHI
DL19114877	NIHAL PUSHKAR	M	DLS0032	KENDRIYA VIDYALAYA ANDREWS GANJ	SOUTH DELHI
DL19114976	PULKIT AGARWAL	M	DLS0034	SARDAR PATEL VIDYALAYA	DELHI
DL19115154	ARNAV GUPTA	M	DLS0052	KENDRIYA VIDYALAYA DWARKA SEC.12	DELHI
DL19115248	ISHANK AGRAWAL	M	DLS0055	DELHI PUBLIC SCHOOL MATHURA ROAD NEW DELHI	NEW DELHI
DL19115270	AMAN BUCHA	M	DLS0056	KENDRIYA VIDYALAYA AGCR COLONY	DELHI
DL19115365	DEV GUPTA	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115370	LAKSHAY CHAWLA	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115371	GAURANSH GUPTA	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115372	AKANKSHA SINGH	F	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115373	SHREY JHA	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115375	ANKIT KUMAR	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115378	MD AKRAM KAMIL	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115382	ERA SARDA	F	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115383	ADITYA GOEL	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115384	CHIRAG FALOR	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115386	VAMSHI VANGALA	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115387	SANDEEPAN NASKAR	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115388	TUSHAR GUJRAL	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115389	ABHINAV BARNAWAL	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115390	SOORAJ SRINIVASAN	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
HR19115391	SHRESHTH YADAV	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
PB19115392	ARYAN JAIN	M	DLS0057	PRAGATI PUBLIC SCHOOL	NEW DELHI
DL19115695	NISHANT AGARWAL	M	DLS0076	KENDRIYA VIDYALAYA PUSHP VIHAR SAKET	DELHI
DL19115826	SHRAYASH PRASAD	M	DLS0078	SRI VENKATESHWAR INTERNATIONAL SCHOOL	DELHI
GJ19116900	MAULINRAJ PARMAR	M	GJS0008	COMMUNITY SCIENCE CENTER VADODARA	VADODARA
GJ19117958	SHIVAM SHAH	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19117959	MIHIR PRAJAPATI	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19117966	DHEER BANKER	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19117967	ARNAV GOEL	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19117987	PRITESH MEHTA	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118040	SHRUTI GHONIYA	F	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118066	DHRUV MAROO	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118109	DHYEY DHARMENDRAKUMAR	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118140	PARTH PATEL	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118148	POOJAN SOJITRA	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118151	TIRTH PATEL	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118153	PRATHAM PATEL	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118155	GAIKWAD SUMEET	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118156	DEEP PANDYA	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118157	ANANTH KRISHNA KIDAMBI	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD

GJ19118158	SHREY BAVISHI	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118164	HET PATEL	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118166	HARSH SHAH	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118169	DHRUV TARSADIYA	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118818	MIHIR KOTHARI	M	GJS0023	VIKRAM A SARABHAI COMMUNITY SCIENCE CENTRE	AHMEDABAD
GJ19118873	NISARG	M	GJS0024	NAVRACHANA SCHOOL	VADODARA
GJ19118937	PANKHIL SHAH	M	GJS0025	SHANNEN KIDS SCHOOL	VADODARA
GJ19118959	TUSHAR LALWANI	M	GJS0026	SHRI O V SHETH REGIONAL COMMUNITY SCIENCE CENTER	RAJKOT
GJ19119009	KRISHI LADANI	F	GJS0026	SHRI O V SHETH REGIONAL COMMUNITY SCIENCE CENTER	RAJKOT
GJ19119329	SMITUL ASHVINKUMAR VACHHANI	F	GJS0042	DELHI PUBLIC SCHOOL SURAT	SURAT
GJ19119838	SHIVAM PATEL	M	GJS0067	HILLWOODS SCHOOL	GANDHI NAGAR
GJ19119880	ALAY THORIA	M	GJS0069	RIVERDALE ACADEMY ENG	SURAT
GJ19119894	ESHAAN JARIWALA	M	GJS0069	RIVERDALE ACADEMY ENG	SURAT
GJ19119901	ASHISH REKHANI	M	GJS0069	RIVERDALE ACADEMY ENG	SURAT
GJ19120060	PRATYUSH PRAVEEN GADGE	M	GJS0076	SHRI VIDHYA NIKETAN	VAPI
GJ19120210	PARTH URVESH SHAH	M	GJS0080	KENDRIYA VIDYALAYA AHMEDABAD CANT.	AHMEDABAD
GJ19120215	SHAH DHRUV RAJENDRABHAI	M	GJS0080	KENDRIYA VIDYALAYA AHMEDABAD CANT.	AHMEDABAD
DL19121438	ARCHIT SAINI	M	HRS0002	THE CENTURY SCHOOL	KARNAL
HR19121728	RISHIT SINGLA	M	HRS0007	MODERN VIDYA NIKETAN SENIOR SECONDARY SCHOOL	FARIDABAD
HR19121749	YASH MALIK	M	HRS0007	MODERN VIDYA NIKETAN SENIOR SECONDARY SCHOOL	FARIDABAD
HR19121753	SAMPAN MANNA	M	HRS0007	MODERN VIDYA NIKETAN SENIOR SECONDARY SCHOOL	FARIDABAD
HR19122320	AMAN BANSAL	M	HRS0021	RPS PUBLIC SCHOOL SURANA NARNAUL	NARNAUL
HR19122372	SHREY CHANDRA	M	HRS0025	DELHI PUBLIC SCHOOL FARIDABAD	FARIDABAD
HR19122537	DIVYANSHU AGARWAL	M	HRS0039	RPS PUBLIC SCHOOL HANSI	HANSI
HR19122712	KESHAV AGARWAL	M	HRS0044	NARAYANA ETECHNO SCHOOL	GURGAON
DL19122719	SIDDHARTH KALRA	M	HRS0044	NARAYANA ETECHNO SCHOOL	GURGAON
HR19123194	RAKSHIT	M	HRS0075	RAO PAHLAD SINGH PUBLIC SCHOOL	REWARI
HR19123401	ABHIMANU SINHA	M	HRS0085	AMITY INTERNATIONAL SCHOOL SEC46 GURGAON	SEC 46 GURGAON
HR19123668	HARSHIT GOYAL	M	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
HR19123669	MOLINA DHEMBLA	F	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
HR19123671	DHVANIT BENIWAL	M	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
HR19123685	GURPREET SINGH WADHWA	M	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
HR19123703	ANUBHAV BHATLA	M	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
HR19123706	TANISH TUTEJA	M	HRS0095	KENDRIYA VIDYALAYA CHANDIMANDIR NO.II	PANCHKULA
JH19124769	SARTHAK	M	JHS0005	KENDRIYA VIDYALAYA BOKARO NO.I DBS CITY	BOKARO STEEL CITY
JH19125405	ARGHADEEP DHARA	M	JHS0010	RAMAKRISHNA MISSION VIDYAPITH	DEOGHAR
JH19125406	SOURADEEP DAS	M	JHS0010	RAMAKRISHNA MISSION VIDYAPITH	DEOGHAR
JH19125409	JUBARAJ PANDA	M	JHS0010	RAMAKRISHNA MISSION VIDYAPITH	DEOGHAR
JH19125870	DAYAL KUMAR	M	JHS0019	DELHI PUBLIC SCHOOL	RANCHI
JH19125957	RAHUL KUMAR SAW	M	JHS0026	2 HIGH SCHOOL KUMHARLALO GIRIDIH	DUMRI
JH19126473	SUPREETI KUMARI	F	JHS0049	DAV PUBLIC SCHOOL BISTUPUR	JAMSHEDPUR
KA19127528	SUDHANSHU BHARADWAJ	M	KAS0003	BASE PU COLLEGE.	MYSURU
KA19127666	M SHASHANK BALAJI	M	KAS0004	P C JABIN PU COLLEGE OF SCIENCE	HUBBALLI
KA19128227	ANMOL S	M	KAS0008	CMR NATIONAL PUBLIC SCHOOL	BENGALURU
KA19128654	GOVIND SAJU	M	KAS0016	ALPINE PUBLIC SCHOOL	BANGALORE
KA19128655	UDHAV VARMA	M	KAS0016	ALPINE PUBLIC SCHOOL	BANGALORE
KA19128682	SUDHANVA K V	M	KAS0016	ALPINE PUBLIC SCHOOL	BANGALORE
KA19128710	SHUBHAN R	M	KAS0017	BASE PU COLLEGE	BANGALAORE
KA19128947	SHIVESH PRAKASH	M	KAS0022	NARAYANA PU COLLEGE	BANGALORE
KA19129053	RISHAD SHETTY	M	KAS0023	EXPERT PU COLLEGE KODIALBAIL MANGALORE	MANGALORE
KA19129532	KIRTAN SUDHAKAR	M	KAS0026	NARAYANA OLYMPIAD SCHOOL	BANGALORE
KA19129535	CHATHURVEDHI TALAPANENI	M	KAS0026	NARAYANA OLYMPIAD SCHOOL	BANGALORE
KA19129623	MOHAMMED RIZAN FAROOQUI	M	KAS0026	NARAYANA OLYMPIAD SCHOOL	BANGALORE
KA19129859	KALP VYAS	M	KAS0039	NATIONAL PUBLIC SCHOOL HSR LAYOUT	BANGALORE
KA19129866	PRANAVA SINGHAL	M	KAS0039	NATIONAL PUBLIC SCHOOL HSR LAYOUT	BANGALORE
KA19130406	BHARATH SHANKAR	M	KAS0054	NATIONAL PUBLIC SCHOOL	BANGALORE

KA19130449	TAMOJEET ROYCHOWDHURY	M	KAS0059	JINDAL VIDYA MANDIR	BALLARI
KA19130532	AMAN SURAJ VERNEKAR	M	KAS0061	SRI SRI RAVISHANKAR VIDYA MANDIR	VIDYARANYAPURA
KA19130594	AMOD HOLLA	M	KAS0061	SRI SRI RAVISHANKAR VIDYA MANDIR	VIDYARANYAPURA
KA19130916	ADVITA MALLIK	M	KAS0061	SRI SRI RAVISHANKAR VIDYA MANDIR	VIDYARANYAPURA
KA19130950	VAIBHAV	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130951	SAGAR	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130954	VIVEK BIRADAR	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130955	SAYAN PUITANDI	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130961	RAKESH	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130962	RASHUL S D	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130963	JAYAPUTRA	M	KAS0062	JAWAHAR NAVODAYA VIDYALAYA NARAYANPUR BIDAR DIST	BIDAR
KA19130996	SAYAK BOSE	M	KAS0064	BASE PU COLLEGE	BANGALORE
KA19132725	SHASHANK P	M	KAS0116	EXPERT PRE UNIVERSITY COLLEGE	MANGALORE
KL19133180	ADITYA BYJU	M	KLS0001	KURIAKOSE ELIAS ENGLISH MEDIUM SCHOOL	KOTTAYAM
KL19133630	ADITYA PREMJIT	M	KLS0004	CHAVARA PUBLIC SCHOOL	PALA
KL19133644	BIJO JOHN	M	KLS0004	CHAVARA PUBLIC SCHOOL	PALA
MH19136423	ARAJ SANJAY KHANDELWAL	M	MHS0004	RAMAN SCIENCE CENTRE AND PLANETARIUM	NAGPUR
MH19136425	PRERAK SUNIL MESHRAM	M	MHS0004	RAMAN SCIENCE CENTRE AND PLANETARIUM	NAGPUR
MH19136436	ADITYA ANIL KADOO	M	MHS0004	RAMAN SCIENCE CENTRE AND PLANETARIUM	NAGPUR
MP19136437	ATHARV PRAVIN DABLI	M	MHS0004	RAMAN SCIENCE CENTRE AND PLANETARIUM	NAGPUR
MH19136449	ACHINTYA MANISH NAIDU	M	MHS0004	RAMAN SCIENCE CENTRE AND PLANETARIUM	NAGPUR
MH19136902	ADVATI MEHLA	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19136990	KARTIK SREEKUMAR NAIR	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137058	SUBARNO NATH ROY	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137063	DIVYESH KRISHANDEV SHINDE	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137108	AMEYA P DESHMUKH	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137167	ARYAN AJAY VORA	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137202	VEDANT MUKESH DEO	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137203	NEERAJ BALKRISHNA JADHAV	M	MHS0007	THAKUR VIDYA MANDIR HIGH SCHOOL AND JUNIOR COLLEGE	MUMBAI
MH19137321	ADITYA PRASHANT KUDRE	M	MHS0009	MES ABASAHEB GARWARE COLLEGE	PUNE
MH19137421	SAHIL MAHAJAN	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137426	SHANTANV NENE	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137431	SRIJAN SRIVASTAVA	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137446	AYUSH RAJEN RAISONI	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137491	ANURAG ABHIJIT PENDSE	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137493	KARTIK PRATAP GOKHALE	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19137537	KHAMKAR RAHUL SANGRAM	M	MHS0010	PMCS RAJIV GANDHI ACADEMY OF ELEARNING AND JR COLLEGE OF SCIENCE	PUNE
MH19138726	DHRUV SHANDILYA	M	MHS0020	RAO JUNIOR COLLEGE OF SCIENCE	MUMBAI
MH19138727	UTSAV KRISHNA JAISWAL	M	MHS0020	RAO JUNIOR COLLEGE OF SCIENCE	MUMBAI
MH19138765	KUNAL KAILAS RANDAD	M	MHS0021	RAO JUNIOR COLLEGE OF SCIENCE BORIVALI	MUMBAI
MH19138786	CHAKSHU ANUP DHANNAWAT	M	MHS0021	RAO JUNIOR COLLEGE OF SCIENCE BORIVALI	MUMBAI
MH19138829	KATYAYANI SHYAM SUNDAR KUMAR KUMARI	F	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138837	KAPIL ANANDKUMAR KUMBHAREY	M	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138861	ISHANI ASHISH BAIS	F	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138862	NILANJAN PULAKKANTI SAMADDAR	M	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138869	GAURAV SHRIPAD UNTAWALE	M	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138871	HARSHANK ANIL MATKAR	M	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138874	SUPRAGYA SHASHIBHUSHAN MISHRA	M	MHS0023	RAO JUNIOR COLLEGE OF SCIENCE	NAGPUR
MH19138909	HEMANSH A SHAH	M	MHS0025	PACE JUNIOR SCIENCE COLLEGE THANE	THANE M CORP
MH19138929	SOHAM SARBENDU ROY	M	MHS0025	PACE JUNIOR SCIENCE COLLEGE THANE	THANE M CORP
MH19139201	ARPON BASU	M	MHS0036	ATOMIC ENERGY CENTRAL SCHOOL NO 4	MUMBAI
MH19139221	MAYANK JAIN	M	MHS0036	ATOMIC ENERGY CENTRAL SCHOOL NO 4	MUMBAI
MH19139309	ADITYA MAHESH PATIL	M	MHS0038	ATOMIC ENERGY JUNIOR COLLEGE	MUMBAI
MH19139640	INDRAYANI TAYDE	F	MHS0045	SOMALWAR HIGH SCHOOL JUNIOR COLLEGE NIKALAS BRANCH	NAGPUR
MH19139644	ARYAN HINGWE	M	MHS0045	SOMALWAR HIGH SCHOOL JUNIOR COLLEGE NIKALAS BRANCH	NAGPUR
MH19139719	SIDHANT BOSE	M	MHS0051	NARAYANA JUNIOR COLLEGE	MUMBAI

MH19139759	SWAYAM SHASHANK CHUBE	M	MHS0051	NARAYANA JUNIOR COLLEGE	MUMBAI
MH19140283	HARSH LULLA	M	MHS0073	RAMSHETH THAKUR PUBLIC SCHOOL	KHARGHAR
MH19140305	AKHILESH NARAYAN	M	MHS0073	RAMSHETH THAKUR PUBLIC SCHOOL	KHARGHAR
MH19140327	VINAYAK GOYAL	M	MHS0073	RAMSHETH THAKUR PUBLIC SCHOOL	KHARGHAR
MH19141290	SAMRIDDHA SINHA	M	MHS0105	CITY INTERNATIONAL SCHOOL WANOWRIE	PUNE
MH19141609	DADHICHI DATTATRAYA TELWADKAR	M	MHS0119	SBES COLLEGE OF SCIENCE	AURANGABAD
MH19143309	KISHORE RAJENDRAN	M	MHS0163	DAV PUBLIC SCHOOL	PUNE
MH19143310	VEDANG ASGAONKAR	M	MHS0163	DAV PUBLIC SCHOOL	PUNE
MH19144029	JASH KABRA	M	MHS0200	CHAMPIONS SCIENCE JUNIOR COLLEGE ANDHERI	MUMBAI
MH19145283	ADITYA SRIRAM	M	MHS0232	KENDRIYA VIDYALAYA PUNE GANESH KHIND	PUNE
MH19146478	YASH AGRAWAL	M	MHS0274	BHAVANS B.P. VIDYA MANDIR SRIKRISHNA NAGAR	NAGPUR
MH19146857	VEDANT MUKUL JOSHI	M	MHS0281	KENDRIYA VIDYALAYA NANDED SC RLY	NANDED
MH19189366	AASHISH AVINAASH ZANTYE	M	MHS0256	RAMNIRANJAN JHUNJHUNWALA COLLEGE OF SCIENCE COMMERCE AND ARTS	MUMBAI
MP19148639	AKARSH JAIN	M	MPS0006	THE SHISHUKUNJ INTERNATIONAL SCHOOL	INDORE
MP19148644	SHUBH HARKAWAT	M	MPS0006	THE SHISHUKUNJ INTERNATIONAL SCHOOL	INDORE
MP19149094	SAMARTH BANSAL	M	MPS0024	SILVER BELLS SCHOOL	GWALIOR
MP19150396	RUCHI DUBE	F	MPS0079	KENDRIYA VIDYALAYA BHOPAL NO.II SHIVAJI NGR.	BHOPAL
MP19151451	PRANJAL SINGH	M	MPS0108	ANUSUIYA SCHOOL	INDORE
MP19151454	KARTIKEY GUPTA	M	MPS0108	ANUSUIYA SCHOOL	INDORE
OD19152529	ARYAN SATPATHY	M	ODS0008	FIITJEE JUNIOR COLLEGE	BHUBANESWAR
OD19152581	DEEVYANSHU MALU	M	ODS0008	FIITJEE JUNIOR COLLEGE	BHUBANESWAR
OD19152650	SIBASISH ROUT	M	ODS0009	SAI INTERNATIONAL SCHOOL	BHUBANESWAR
OD19153068	STITIPRAJNA SAHOO	F	ODS0020	DAV PUBLIC SCHOOL	BHUBANESWAR
OD19153187	JYOTIRADITYA MISHRA	M	ODS0020	DAV PUBLIC SCHOOL	BHUBANESWAR
OD19153254	SOURABH SOUMYAKANTA DAS	M	ODS0020	DAV PUBLIC SCHOOL	BHUBANESWAR
PB19154700	ANURAG GUPTA	M	PBS0002	SACRED HEART CONVENT SCHOOL	LUDHIANA
PB19155194	MUDIT GOYAL	M	PBS0022	KENDRIYA VIDYALAYA PATIALA NO.I	PATIALA
PB19155195	KARAN JAIN	M	PBS0022	KENDRIYA VIDYALAYA PATIALA NO.I	PATIALA
PB19155224	OJAS SINGH	M	PBS0024	KENDRIYA VIDYALAYA BHATINDA NO.V CHAUDHARY MARG	BATHINDA
PB19155440	SARTHAK ARORA	M	PBS0031	APEEJAY SCHOOL	JALANDHAR
PB19155461	AVVAL AMIL	M	PBS0031	APEEJAY SCHOOL	JALANDHAR
PB19156291	UJJWAL MEHTA	M	PBS0060	BHUPINDRA INTERNATIONAL PUBLIC SCHOOL	PATIALA
PB19156348	SHUBH KARMAN SINGH BHULLAR	M	PBS0060	BHUPINDRA INTERNATIONAL PUBLIC SCHOOL	PATIALA
PB19156679	ANSH BANSAL	M	PBS0069	GURU NANAK PUBLIC SCHOOL	BATHINDA
PB19156697	GAVISH GARG	M	PBS0069	GURU NANAK PUBLIC SCHOOL	BATHINDA
RJ19157490	HRUSHIT KAKADIA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
JH19157493	SWAPNIL SHEKHAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157530	DIVYANSH VIJAYVERGIA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157581	AVI KUMAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157608	CHAITANYA GAUR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157626	RAISHAV BIKARWAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157627	PRIYANSH RATHI	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157743	ABHISHEK	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
GJ19157751	MARGAV SAVASANI	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157752	PATEL DHRUV KIRITBHAI	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157799	SARTAJ ISLAM	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157809	DHANANJAY KEJRIWAL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157855	GARGI GUPTA	F	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19157894	AYUSH SINGH	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158036	ANKAN SARKAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
UP19158043	SHIVA KANT PAL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158054	MAYANK MOTWANI	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158077	AARYAN KUMAR GUPTA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158084	ANANYA DAS	F	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158088	ARIN KEDIA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158090	HARSH TRIVEDI	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA

RJ19158097	HARSHVARDHAN JAKHER	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158103	PRAKHAR BANSAL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158104	PRIYAL VYAS	F	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158106	PRIYANSH PARAKH	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158107	PULKIT ADIL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158110	DEVANSH SINGH	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158113	HARSHIT RAJ	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158115	ABHINAV SINHA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158117	SHIVAM MISHRA	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158118	ACHINTYA NATH	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158122	AMAN SHEKHAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158125	TEJAS BANSOD	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158126	ASHUTOSH MUDULY	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158130	UTKARSH PRATAP SINGH	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158131	KESHAV RANJAN	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158133	MAYUNISH AGARWAL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158134	SAHIL GARG	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158137	SAMARTH AGARWAL	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158142	SANKALP PARASHAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158146	UTKARSH RANJAN	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158147	SHUBHANGI	F	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158151	SOURADEEP KAR	M	RJS0004	ST. JOHNS SENIOR SECONDARY SCHOOL	KOTA
RJ19158475	MANISH KUMAWAT	M	RJS0005	BHARATIYA VIDYA BHAVAN VIDYASHRAM	JAIPUR
RJ19158591	VISHAL BULCHANDANI	M	RJS0005	BHARATIYA VIDYA BHAVAN VIDYASHRAM	JAIPUR
RJ19158600	ASHUTOSH SHARMA	M	RJS0005	BHARATIYA VIDYA BHAVAN VIDYASHRAM	JAIPUR
RJ19158611	AMAN SHARMA	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19158634	TEJAS KUMAR	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19158795	ABHINAV JAIN	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159061	PRATYUSH GUPTA	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159106	AKHIL AGRAWAL	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159211	VIRENDRA KABRA	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159829	RAJAT GATTANI	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159992	JAIDEEP SHARMA	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19159997	AKSH GARG	M	RJS0009	JAYSHREE PERIWAL HIGH SCHOOL	JAIPUR
RJ19160368	MRIDUL AGARWAL	M	RJS0012	ST.XAVIERS SR.SEC.SCHOOL	JAIPUR
RJ19160502	VAIBHAV SAHA	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160521	MAHANDEEP PARIDA	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160595	SOUMITRA DARSHAN NAYAK	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160638	AKSHUNYA VIJAYYARGIYA	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160681	DAKSH KHANDELWAL	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160689	PRATHAM PEKAMWAR	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19160709	SHREYAS JENA	M	RJS0016	LORD BUDDHA PUBLIC SCHOOL	KOTA
RJ19161409	KRITI JAIN	F	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19161551	ANURAG ABHAY KOTHARI	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
MH19161811	SAHIL RAHUL JAIN	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19161815	SOYEB AFTAB	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19161818	PARTH HRISHIMAN SINGH	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19161821	UTSAV KUMAR	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19161842	SHIVANK MISHRA	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
BR19161844	ABHINAV PRAKASH	M	RJS0028	SHIV JYOTI SR SEC SCHOOL	KOTA
RJ19163419	UTKARSH CHITTORA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163422	PRIYANSHI GUPTA	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163451	SOUMYADWIP CHANDA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163460	SHREYANSH AGARWAL	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163492	SOLANKI DIVYAMSINH	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163503	ADITYA CHOUDHARY	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA

RJ19163586	AYAN MINHAM KHAN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163610	HARSHWARDHAN N BHAKKAD	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163613	RISHIT SRIVASTAVA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163620	PRIYANSH MAAN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163623	YASHWANTH REDDY CHALLA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163628	VAIBHAV RAJ	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163630	NISHANT ROSHAN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163640	AAKASH OM TRIVEDI	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163659	ARNAV ADITYA SINGH	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163660	OMM AGRAWAL	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163665	MOHAMMAD FURQUAN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163666	HARSH JAIN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163676	MOHIT GUPTA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163679	MANSI	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163680	CHINMAYEE BEHERA	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163682	SHUBHA GAUR	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163683	KUNAL SAMANTA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163684	PAREKH DHAIRYA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163687	AKHIL JAIN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163689	SAPTARSHI SEN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163691	UJWAL JYOT PANDA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163693	PARSHVA BHIKHALAL BHADRA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163694	SAKSHAM SINGH	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163695	TANMAY DOKANIA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163696	R. MUHENDER RAJ	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163697	AARYAN TIWARY	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163700	NAMAN SINGH RANA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163701	ABHISHEK PARDHI	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163705	PARTH DWIVEDI	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163716	SIRIGUDI MEGHNA	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163717	GUTTA SINDHUJA	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163718	YUVRAJ SINGH SHEKHAWAT	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163724	SIDDHANT MUKHEJEE	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163726	ABHIJIT AMRENDRA KUMAR	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163741	LAKSHYA GUPTA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163742	AADARSHRAJ SAH	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163782	ABHISHEK AMRENDRA KUMAR	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163803	MRIDUL GANWAL	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163812	KUNAL KUNDWANI	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163813	MUDITA GOYAL	F	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163815	SHASWAT JAIN	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163818	RAUNAQ GUHA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
DL19163824	KRATIK AGARWAL	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163858	APOORVE SHUKLA	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19163868	PANDURANG YASHWANT DEORE	M	RJS0052	DISHA DELPHI PUBLIC SCHOOL	KOTA
RJ19164986	SOHAM TRIPATHY	M	RJS0099	SHIV JYOTI INTERNATIONAL SCHOOL	KOTA
RJ19165352	SAHIL BANSAL	M	RJS0107	VRINDAVAN PUBLIC SCHOOL	AJMER
RJ19165353	PARTH MANIAR	M	RJS0107	VRINDAVAN PUBLIC SCHOOL	AJMER
RJ19165359	PRATHAM JAIN	M	RJS0107	VRINDAVAN PUBLIC SCHOOL	AJMER
RJ19165985	ADITYA TANWAR	M	RJS0125	YADAV BHARTI SR. SEC SCHOOL	BIKANER
RJ19166335	GAURAV SHEKHAWAT	M	RJS0130	CHILDREN SR.SEC.SCHOOL	KOTA
MP19166375	RISHI JAIN	M	RJS0130	CHILDREN SR.SEC.SCHOOL	KOTA
TN19167190	B GURUVAYURAPPAN	M	TNS0005	THE SUGUNA PIP SCHOOL	COIMBATORE
TN19167208	R K SURIYAH	M	TNS0005	THE SUGUNA PIP SCHOOL	COIMBATORE
TN19167488	K V SUDHARSHAN	M	TNS0006	CHETTINAD VIDYASHRAM	CHENNAI
TN19167494	VIBHU RAVINDRAN	M	TNS0006	CHETTINAD VIDYASHRAM	CHENNAI

TN19167529	PRADEEP S	M	TNS0006	CHETTINAD VIDYASHRAM	CHENNAI
TN19167601	ADITYA S SADHU	M	TNS0009	CHENNAI PUBLIC SCHOOL	CHENNAI
TN19167613	S NIKHIL	M	TNS0009	CHENNAI PUBLIC SCHOOL	CHENNAI
TN19167763	ANIRUDDHA.S	M	TNS0012	SISHYA SCHOOL	HOSUR
TN19167836	ASHWIN RAMACHANDRAN	M	TNS0015	MAHARISHI INTERNATIONAL RESIDENTIAL SCHOOL	KANCHIPURAM
TN19169433	ASWIN ABRAHAM	M	TNS0035	NARAYANA ETECHNO SENIOR SECONDARY SCHOOL POONAMALLEE	CHENNAI
TN19169739	JAI MURHEKAR	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19169789	ABHINAV SEN	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19169794	B. SRIVATHSAN	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19169795	R SAI ASHWIN	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19169817	C. ADITYA	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19169969	HARI HARA NAVEEN S	M	TNS0041	MAHARISHI VIDYA MANDIR SENIOR SECONDARY SCHOOL	CHENNAI
TN19170346	RAGHURAM SUNDARARAJAN	M	TNS0059	SRI SANKARA SENIOR SECONDARY SCHOOL	CHENNAI
TN19171775	RUSHILLBAIRAVANM	M	TNS0092	SENTHIL PUBLIC SCHOOL CBSE	SALEM
TS19173160	VISHAL RAVIPATI	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173161	PRATHAMESH SACHIN PILKHANE	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173183	AYUSH PATEL	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173197	K ANIRUDH KRISHNA REDDY	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173207	K ADITYA NANDA KISHORE	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173252	AMEYA VIKRAMA SINGH	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173253	ANEESH ANAND KAMAT	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173256	GUNDABATHULA SASANK	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173260	MAKAM ANISH	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173261	VEGI ABHIJNAN	M	TSS0001	FIITJEE WORLD SCHOOL	HYDERABAD
TS19173519	SURYAANSH JAIN	M	TSS0005	FIITJEE JUNIOR COLLEGE	HYDERABAD
TS19173520	MUSKAAN JAIN	F	TSS0005	FIITJEE JUNIOR COLLEGE	HYDERABAD
TS19173541	GAUTHAM BELLAMKONDA	M	TSS0007	FIITJEE SCHOOL	HYDERABAD
TS19174161	PREETHAM BATTULA	M	TSS0016	NARAYANA HIGH SCHOOL	HYDERABAD
TS19174166	GUFRAN ALI.MOHAMMED	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174167	SRIRAJ.LINGAMARLA	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174169	P SUBHAKARI	F	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174171	KESHAVARDHAN REDDY.TERA	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174182	KARTHIK.K	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174183	PABBARAJU ANIRUDH.	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174198	SAI ADITYAK	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174218	MOHAMMED ANAS	M	TSS0018	NARAYANA OLYMPIAD SCHOOL	HYDERABAD
TS19174237	V . ARAVIND NARASIMHA	M	TSS0020	SRI CHAITANYA JUNIOR COLLEGE	HYDERABAD
TS19174238	C . KOUSHAL KUMAR REDDY	M	TSS0020	SRI CHAITANYA JUNIOR COLLEGE	HYDERABAD
TS19174267	SAI ROHAN PALUSA	M	TSS0020	SRI CHAITANYA JUNIOR COLLEGE	HYDERABAD
TS19174699	N SURYA PRAKASH REDDY	M	TSS0062	NARAYANA JUNIOR COLLEGE C.C. 58333	IBRAHIMPATNAM
AP19174798	LIKHITH REDDY.M	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
AP19174814	SUSHANTH MARADA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174817	KARANAM SAI SUMEDH	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174818	YASH MAILAPALLI	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
AP19174819	POORNA TEJA PASALA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174822	NAMOJU KARTHIKEYA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174823	VIGNESHWAR REDDY	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174826	SAGI SHIVA KRISHNA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174827	MATTAPALLY VARUN	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174837	BHAVANA. M	F	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174841	VIRINCHI MOURYA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174844	CHUKKA TANUJA	F	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174845	NAMITHA KOTHAPALLI	F	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174847	HARDIK RAJPAL	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174861	ADITYA VIRAJ RAO PONUGOTI	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174862	SATHVIK REDDY GARLAPATI	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD

TS19174863	JOSYULA VENKATA ADITYA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174866	SAI TEJA VARANASI	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174872	DEETI YESHASH CHANDRA	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174874	MADUR ADARSH REDDY	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
MH19174938	OM MIHANI	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174944	GOUTHAM SRINIVAS	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19174949	CHIKOTI SHREENAGA TEJAS	M	TSS0066	NARAYANA IIT ACADEMY	HYDERABAD
TS19175327	G.SUJITH CHARAN	M	TSS0075	SRI GURUDATH HIGH SCHOOL	HANAMKONDA
TS19175346	R.SRINITHA	F	TSS0075	SRI GURUDATH HIGH SCHOOL	HANAMKONDA
TS19176189	D SAI KUSHAL REDDY	M	TSS0083	NARAYANA JUNIOR COLLEGE	K.V. RANGAREDDY
TS19176201	TANGADAPALLY SIRI GOUTHAM SAGAR	M	TSS0083	NARAYANA JUNIOR COLLEGE	K.V. RANGAREDDY
TS19176220	DWARAPUDI HARSHAVARDHAN	M	TSS0083	NARAYANA JUNIOR COLLEGE	K.V. RANGAREDDY
TS19176222	NALLA JAGANNATH REDDY	M	TSS0083	NARAYANA JUNIOR COLLEGE	K.V. RANGAREDDY
TS19176681	B RAJA RAVI KIRAN REDDY	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176682	T YASHAS	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176899	ANNAM. SAIVARDHAN	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176907	G. SARVESHWAR REDDY	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176908	B. VENKAT PRANEETH REDDY	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176909	D. VENKATESH PRASAD	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176915	M. BRUNDA	F	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176916	R ARUNSIDDARDHA	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19176918	R. SHASHANK ANIRUDH	M	TSS0088	SRI CHAITANYA JR KALASALA	HYDERABAD
TS19177470	RAMASWAMY SANTHOSH REDDY	M	TSS0097	NARAYANA JUNIOR COLLEGE	HYDERABAD
UP19179831	ARPIT KUMAR RAI	M	UPS0001	SUNBEAM ENGLISH SCHOOL	VARANASI
UP19180596	VAIBHAV MISHRA	M	UPS0009	VANASTHALI PUBLIC SCHOOL	GHAZIABAD
UP19181063	ARHAAN AHMAD	M	UPS0021	DAYAWATI MODI ACADEMY	MEERUT
UP19181210	PRANJAL KUSHWAHA	M	UPS0025	DELHI PUBLIC SCHOOL GRETAER NOIDA	GREATER NOIDA
UP19181223	PRERIT PALIWAL	M	UPS0025	DELHI PUBLIC SCHOOL GRETAER NOIDA	GREATER NOIDA
DL19181241	PUSHP SRIVASTAVA	M	UPS0025	DELHI PUBLIC SCHOOL GRETAER NOIDA	GREATER NOIDA
UP19181501	KUMAR SAURAV	M	UPS0037	KHAITAN PUBLIC SCHOOL	GHAZIABAD
UP19181749	SAMRTH TRIPATHI	M	UPS0052	ATOMIC ENERGY CENTRAL SCHOOL NARORA	NARORA
UP19181778	ISHAAN GOVIL	M	UPS0054	DELHI PUBLIC SCHOOL GHAZIABAD MEERUT ROAD	GHAZIABAD
UP19181799	SHASHWAT GARG	M	UPS0054	DELHI PUBLIC SCHOOL GHAZIABAD MEERUT ROAD	GHAZIABAD
DL19182049	YASH RAJ MITTAL	M	UPS0061	KENDRIYA VIDYALAYA MEERUT CANT. DL	MEERUT
UP19182543	ARYAN SINHA	M	UPS0073	KOTHARI INTERNATIONAL SCHOOL	NOIDA
UP19182577	L GOKULNATH	M	UPS0073	KOTHARI INTERNATIONAL SCHOOL	NOIDA
UP19183544	ANAMIKA VERMA	F	UPS0119	KENDRIYA VIDYALAYA JAGDISHPUR BHEL	AMETHI
DL19185768	SAMYAK JAIN	M	UPS0196	AMITY INTERNATIONAL SCHOOL	NOIDA
UP19185772	VAIBHAV AGARWAL	M	UPS0196	AMITY INTERNATIONAL SCHOOL	NOIDA
UP19186045	AKASH SINHA	M	UPS0203	SUNBEAM SCHOOL ANNAPURNA LAHARTARA	VARANASI
UP19186455	SHIVANG PANDEY	M	UPS0218	KENDRIYA VIDYALAYA LUCKNOW GOMTI NAGAR	LUCKNOW
WB19186912	SAYAK BISWAS	M	WBS0003	RAMAKRISHNA MISSION VIDYALAYA	KOLKATA
WB19187093	HARSHVARDHAN MANTRY	M	WBS0006	TECHNO INDIA GROUP PUBLIC SCHOOL	SILIGURI
WB19187139	SREEMANTI DEY	F	WBS0007	CALCUTTA BOYS SCHOOL	KOLKATA
WB19187392	SHAMBO SAHA	M	WBS0016	DAV MODEL SCHOOL DURGAPUR	DURGAPUR
WB19187409	SUBHAM GHOSH	M	WBS0016	DAV MODEL SCHOOL DURGAPUR	DURGAPUR
WB19187462	TARANG SUR CHAUDHURY	M	WBS0017	KENDRIYA VIDYALAYA BARRACKPORE ARMY	KOLKATA
WB19187478	PURNENDU DAS	M	WBS0017	KENDRIYA VIDYALAYA BARRACKPORE ARMY	KOLKATA
WB19187565	RATNADEEP MANDAL	M	WBS0018	BASIRHAT HIGH SCHOOL	BASIRHAT
WB19188351	SANMIT CHAKRABORTY	M	WBS0058	SALT LAKE SCHOOL	KOLKATA
WB19188372	ANURAG RAY	M	WBS0058	SALT LAKE SCHOOL	KOLKATA
WB19188559	DIPAYAN DATTA	M	WBS0062	HEMSHEELA MODEL SCHOOL	DURGAPUR
WB19189227	ANKUR BHAUMIK	M	WBS0072	DELHI PUBLIC SCHOOL RUBY PARK KOLKATA	KOLKATA

B.P. Tyagi
Chief Coordinator (EXAMS)

State-wise Enrolment of National Standard Examination - 2019 and the number of students selected for next stage i,e Indian National Olympiad (INO - 2020) in respective subjects.

Sr. No.	State		NSEP - 2019		NSEC - 2019		NSEB -2019		NSEA -2019			NSEJS - 2019		
		No. of Centres	MI= 170 MAS = 106		MI = 177 MAS = 111		MI = 162 MAS = 101		MI = 154 MAS = 96		MI = 145 MAS = 91	No. of Centres	MI = 159 MAS = 99	
			Enl	Selected	Enl	Selected	Enl	Selected	Enl	Selected	Selected		Enl	Selected
1	ANDAMAN & NICOBAR ISLANDS	XX	none	none	none	none	none	none	none	none	none	none	none	none
2	ANDHRA PRADESH	40	2575	49	2711	139	700	19	1182	27	23	30	4710	67
3	ARUNACHAL PRADESH	18	140	none	154	none	219	none	19	none	none	27	415	none
4	ASSAM	56	1313	2	1026	4	1061	1	116	1	none	40	628	none
5	BIHAR	31	1982	25	1889	25	799	24	809	21	6	26	1324	13
6	CHHATTISGARH	36	752	7	660	7	480	6	276	6	4	24	636	1
7	CHANDIGARH	7	1071	6	1064	14	477	5	434	6	5	5	162	5
8	DADRA & NAGAR HAVELI	XX	none	none	none	none	none	none	none	none	none	XX	none	none
9	DAMAN & DIU	XX	none	none	none	none	none	none	none	none	none	XX	1	1
10	DELHI	52	2435	25	2178	73	813	19	956	21	7	20	1565	6
11	GOA	13	450	3	399	4	415	5	107	1	none	5	121	none
12	GUJARAT	58	2358	19	2242	23	1732	13	869	12	12	37	1292	13
13	HIMACHAL PRADESH	27	404	5	337	5	254	5	86	3	none	27	534	none
14	HARYANA	83	2033	13	2012	31	1031	7	655	13	9	31	1918	10
15	JHARKHAND	44	1329	6	1082	7	563	7	427	5	5	21	893	3
16	JAMMU AND KASHMIR	17	428	2	360	5	192	2	60	none	none	12	262	none
17	KARNATAKA	82	3589	15	3452	24	3393	14	941	12	12	37	2175	15
18	KERALA	44	1801	8	1619	9	1636	9	572	7	4	21	725	none
19	LAKSHADWEEP	XX	none	none	none	none	none	none	none	none	none	none	none	none
20	MAHARASHTRA	214	6342	28	5877	65	5094	30	1955	24	26	76	3781	28
21	MANIPUR	14	94	none	83	none	192	none	15	none	none	15	240	1
22	MADHYA PRADESH	93	2189	19	1966	22	1333	19	665	16	7	66	1930	5
23	MEGHALAYA	10	81	none	70	none	86	none	9	none	none	7	43	none
24	MIZORAM	3	4	none	4	none	12	none	none	none	none	6	64	1
25	NAGALAND	4	21	none	28	none	22	none	none	none	none	10	95	none
26	ODISHA	54	1368	10	1198	10	1114	10	437	2	8	36	1178	10
27	PUNJAB	59	1618	11	1444	24	845	7	411	6	6	33	987	5
28	PUONDICHERRY	5	55	2	54	5	60	3	9	none	none	4	118	none
29	RAJASTHAN	92	5250	69	5193	130	4471	20	1450	39	27	32	2520	18
30	SIKKIM	4	25	none	23	none	27	none	1	none	none	5	94	none
31	TAMIL NADU	85	3514	18	3348	25	2733	17	1002	15	15	26	2788	17
32	TRIPURA	13	234	3	214	4	289	5	50	none	none	11	182	none
33	TELANGANA	61	3326	35	3260	68	719	8	1672	30	24	26	5193	33
34	UTTARAKHAND	59	1051	5	775	5	589	6	259	5	1	37	959	3
35	UTTAR PRADESH	158	4495	51	3595	53	1752	53	1549	42	37	73	3389	30
36	WEST BENGAL	54	1586	22	1327	21	1182	21	523	17	19	32	1087	15

MI : Merit Index is 80% of the average of Top Ten Scores in th respective NSE. All students scoring equal to and above MI are selected for the next stage i,e INO - 2020.

MAS : Minimum Admissible Score is 50% of the average of Top Ten Scores. No students below MAS is shortlisted for next stage i,e INO - 2020. However students between MAS and MI may and may not be selected.This depends upon which state he/she belongs to.

B.P. Tyagi (Chief Coordinator Exams)

NATIONAL GRADUATE PHYSICS EXAMINATION - 2020

Registered centres of NGPE - 2020

S No	Centre	NAME OF INSTITUTION (REGISTERED CENTRES)	Enrolled
1	**G-1102**	SHIVAJI COLLEGE (DU) RAJA GARDEN DELHI	11
2	**G-1109**	MIRANDA HOUSE DELHI UNIVERSITY DELHI	16
3	**G-1111**	ST STEPHEN'S COLLEGE DELHI UNIVERSITY DELHI	39
4	**G-1112**	S G T B KHALSA COLLEGE, DELHI UNIVERSITY, DELHI	15
5	**G-1113**	SWAMI SHARDDHANAND COLLEGE ALIPUR DELHI	11
6	**G-1116**	SRI VENKATESWARA COLLEGE DHAULA KUAN NEW DELHI	34
7	**G-1117**	GARGI COLLEGE DELHI UNIVERSITY DELHI	41
8	**G-1118**	KALINDI COLLEGE EAST PATEL NAGAR NEW DEHLI	48
9	**G-1203**	DYAL SINGH COLLEGE KARNAL, (HR)	66
10	**G-1212**	GOVT. PG COLLEGE FOR WOMEN, ROHTAK (HR)	32
11	**G-1215**	MARKANDA NATIONAL COLLEGE SHAHABAD MARKANDA (HR)	18
12	**G-1221**	J V M G R R COLLEGE CHARKHI DADRI (HR)	19
13	**G-1401**	GOVT COLLEGE FOR GIRLS LUDHIANA (Pb)	12
14	**G-1405**	KHALSA COLLEGE AMRITSAR (Pb)	23
15	**G-1406**	S GOVT. COLLEGE OF SCIENCE RESERCH JAGRAON LUDHIANA (Pb)	13
16	**G-1412**	A.S. COLLEGE KHANNA DISTT LUDHIANA (Pb)	88
17	**G-1414**	KHALSA COLLEGE FOR WOMEN CIVIL LINES LUDHIANA (Pb)	105
18	**G-1420**	DEPT. OF PHYSICS GND UNIVERSITY AMRITSAR	6
19	**G-1422**	KANYA MAHAVIDYALYA JALANDHAR CITY (Pb)	54
20	**G-1425**	G S S D G S KHALSA COLLEGE PATIALA	55
21	**G-1427**	S D COLLEGE BARNALA (Pb)	54
22	**G-1429**	D A V COLLEGE BATHINDA (Pb)	19
23	**G-1430**	J C D A V COLLEGE DASUYA Distt. HOSHIARPUR (Pb)	34
24	**G-1431**	GURU NANAK COLLEGE FOR GIRLS SRI MUKTSAR SAHIB (Pb)	32
25	**G-1433**	LOVELY PROFESSIONAL UNIVERSITY PHAGWARA (Pb)	32
26	**G-1434**	MULTANI MAL MODI COLLEGE, PATIALA	45
27	**G-1435**	AKAL UNIVERSITY TALWANDI SABO BATHINDA (Pb)	37
28	**G-1436**	SRI GURU TEG BAHADUR KHALSA COLLEGE, SRI ANANDPUR SAHIB RUPNAGAR	14
29	**G-1603**	Dept. OF PHYSICS, PANJAB UNIVERSITY CHANDIGARH	31
30	**G-1605**	G G D S D COLLEGE SECTOR 32C CHANDIGARH	58
31	**G-1606**	PG GOVT. COLLEGE FOR GIRLS SECTOR 11 CHANDIGARH	44
32	**G-1703**	GOVT. COLLEGE DHARAMSHALA (HP)	33
33	**G-1708**	GOVT. DEGREE COLLEGE KULLU (HP)	15
34	**G-1712**	GOVT. VCOLLEGE SOLAN	19
35	**G-1723**	GOVT. COLLEGE DHALIARA Distt. KANGRA	33
36	**G-1801**	GOVT. G M SCIENCE COLLEGE JAMMU (J&K)	25
37	**G-1803**	GOVT. DEGREE COLLEGE KATHUA J&K	57
38	**G-1822**	G L D M DEGREE COLLEGE HIRANAGAR Distt. KATHUA J&K	50
39	**G-2101**	Dept.of Phys. ALIGARH MUSLIM UNIVERSITY ALIGARH	19
40	**G-2102**	VSSD COLLEGE KANPUR	29
41	**G-2104**	DBS (PG) COLLEGE DEHRADUN	15
42	**G-2105**	Dept. OF Phys GURUKULA KANGRI VISHWAVIDYALAYA HARIDWAR	5
43	**G-2106**	S.D. COLLEGE MUZAFFARNAGAR	33
44	**G-2121**	HINDU COLLEGE MORADABAD (UP)	13
45	**G-2127**	UNIVERSITY OF LUCKNOW, LUCKNOW	19

46	**G-2129**	Dept.of Phys. BANARAS HINDU UNIVERSITY VARANASI	70
47	**G-2135**	M S COLLEGE SAHARANPUR (UP)	9
48	**G-2136**	Dept. of Phys. ALLAHABAD UNIVERSITY ALLAHABAD	50
49	**G-2142**	Dept. of Phys DDU GORAKHPUR UNIVERSITY GORAKHPUR	55
50	**G-2144**	PT. L M S GOVT PG COLLEGE RISHIKESH	11
51	**G-2151**	VARDHAMAN COLLEGE BIJNOR (UP)	31
52	**G-2154**	D.A.V. COLLEGE MUZAFFARNAGAR (UP)	21
53	**G-2156**	D S N COLLEGE UNNAO (UP)	12
54	**G-2161**	EWING CHRISTIAN COLLEGE ALLAHABAD	117
55	**G-2167**	FACULTY OF SCIENCE SHUATS ALLAHABAD (UP)	57
56	**G-2173**	S S COLLEGE SHAHJAHANPUR (UP)	15
57	**G-2177**	K.N INSTITUTE OF PHYSICAL & SOCIAL. SCIENCE SULTANPUR (UP)	331
58	**G-2190**	NATIONAL PG COLLEGE LUCKNOW	311
59	**G-2193**	ATARRA PG COLLEGE ATARRA DT. BANDA (UP)	13
60	**G-2194**	PT. D D U GOVT. GIRLS P G COLLEGE RAJAJIPURAM LUCKNOW	10
61	**G-2196**	ISABELLA THOBURN COLLEGE LUCKNOW	27
62	**G-2197**	S S KHANNA COLLEGE ALLAHABAD	30
63	**G-2198**	K N GOVT PG COLLEGE GYANPUR BHADOHI (UP)	80
64	**G-2199**	S G R R COLLEGE DEHRADUN (UKH)	47
65	**G-2200**	ST JOHN'S COLLEGE AGRA	31
66	**G-2201**	KB PG COLLEGE MIRZAPUR (UP)	36
67	**G-2204**	K L DAV PG COLLEGE ROORKEE	10
68	**G-2205**	ARMY CADET COLLEGE IMA DEHRADUN	17
69	**G-2206**	GRAPHIC ERA HILL UNIVERSITY DEHRADUN	20
70	**G-2209**	GOVT. PG COLLEGE BADAUN (UP)	40
71	**G-2210**	SHIV NADAR UNIVERSITY GAUTAM BUDH NAGAR (UP)	29
72	**G-2212**	D J COLLEGE BARAUT BAGHPAT (UP)	32
73	**G-2213**	SAMRAT PRITHVIRAJ CHAUHAN P G COLLEGE BAGHPAT (UP)	58
74	**G-2214**	SHIBLI NATIONAL COLLEGE AZAMGARH	10
75	**G-2215**	V.S.K.C. GOVT. P.G COLLEGE, DAKPATHAR	14
76	**G-3106**	M L V GOVT COLLEGE BHILWARA (RAJ)	13
77	**G-3115**	L. M COLLEGE OF SCIENCE AND TECHNOLOGY JODHPUR	10
78	**G-3117**	Dept. of Phys. RAJASTHAN UNIVERSITY JAIPUR	20
79	**G-3118**	THE I.I.S UNIVERSITY JAIPUR	34
80	**G-3119**	REGIONAL INSTITUTE OF EDUCATION AJMER (RAJ)	14
81	**G-3120**	S.S.JAIN SUBODH AUTO PG COLLEGE RAMBAGH CIRCLE JAIPUR	162
82	**G-3121**	KANORIA PG MAHILA MAHAVIDYALAYA JAIPUR	10
83	**G-3126**	UNIVERSITY OF KOTA , KOTA	19
84	**G-3127**	CENTRAL UNIVERSITY OF RAJASTHAN AJMER	25
85	**G-3601**	H & HB KOTAK INSTITUTE OF SCIENCE RAJKOT	117
86	**G-3602**	SIR P P INSTITUTE OF SCIENCE WAGHAWEDI Rd BHAVNAGAR	26
87	**G-3603**	ST. XAVIER'S COLLEGE NAVRANGPURA AHMEDABAD	40
88	**G-3606**	J & J COLLEGE OF SCIENCE NADIAD (GUJ)	19
89	**G-3607**	Dept. of Phys. THE M S UNIVERSITY OF BARODA VADODARA	37
90	**G-3609**	B P BARIA SCIENCE INSTITUTE NAVASARI (GUJ)	74
91	**G-3611**	VP & RPTP SCIENCE COLLEGE VALLABH VIDYANAGAR (GUJ)	105
92	**G-3619**	BAHAUDDIN SCIENCE COLLEGE JUNAGADH	20
93	**G-3621**	CHRIST COLLEGE RAJKOT (GUJ)	19
94	**G-3624**	SIR P.T. SARVAJANIK COLLEGE OF SCIENCE SURAT	11

95	**G-3626**	SHETH M N SCIENCE COLLEGE PATAN (NORTH GUJARAT)	20
96	**G-3630**	NAVYUG SCIENCE COLLEGE SURAT	20
97	**G-3631**	BHAVAN'S COLLEGE DAKOR (GUJ)	30
98	**G-3636**	BHAVAN'S SETH RA COLLEGE OF SCIENCE KHANPUR AHMEDABAD	17
99	**G-3639**	M N COLLEGE VISNAGAR MESHANA (GUJ)	10
100	**G-3641**	DKV ARTS & SCIENCE COLLEGE JAMNAGAR (GUJ)	15
101	**G-4003**	PARVATIBAI CHOWGULE COLLEGE MARGAO GOA	15
102	**G-4004**	CARMEL COLLEGE NUVEM (GOA)	7
103	**G-4006**	BITS- PILANI K K BIRLA GOA CAMPUS ZUARINAGAR GOA	124
104	**G-4101**	MAHARASHTRA COLLEGE MUMBAI	28
105	**G-4104**	D.G.RUPAREL COLLEGE MAHIM MUMBAI	26
106	**G-4105**	FERUGSSON COLLEGE PUNE (MS)	89
107	**G-4106**	SANGAMESHWAR COLLEGE SOLAPUR	14
108	**G-4109**	JAI HIND EDUCATIONAL TRUST'S Z.B.PATIL COLLEGE DEOPUR DHULE	33
109	**G-4116**	ST. XAVIER'S COLLEGE MUMBAI	15
110	**G-4117**	SMT. C H M COLLEGE ULHASNAGAR THANE (MS)	16
111	**G-4118**	R N JHUNJHUNWALA COLLEGE GHATKOPAR (W) MUMBAI	39
112	**G-4119**	SFS COLLEGE SEMINARY HILLS NAGPUR	20
113	**G-4128**	RNC ARTS JDB COMMERCE & NSC SCIENCE COLLEGE NASHIK ROAD (MS)	13
114	**G-4129**	NOWROSJEE WADIA COLLEGE PUNE	23
115	**G-4130**	NEW ARTS COMMERCE &SCIENCE COLLEGE AHMEDNAGAR (MS)	25
116	**G-4131**	JAI HIND COLLEGE CHURCHGATE MUMBAI	28
117	**G-4140**	VIVEKANAND COLLEGE 204 'E' TARABAI PARK KOLHAPUR	34
118	**G-4147**	NANASAHEB Y N CHAVAN COLLEGE CHAILSGAON JALGAON (MS)	15
119	**G-4150**	G N KHALSA COLLEGE MATUNGA MUMBAI	8
120	**G-4155**	TULJARAM CHATURCHAND COLLEGE, BARAMATI	24
121	**G-4159**	YOGESHWARI MAHAVIDYALYA, AMBAJOGAI	10
122	**G-4161**	N E S RATNAM COLLEGE BHANDUP MUMBAI	34
123	G-4163	SHIVAJI COLLEGE KANNAD Dt.. AURANGABAD (MS)	11
124	**G-4165**	B N BANDODKAR COLLEGE OF SCIENCE THANE	20
125	**G-4168**	BHAVAN'S COLLEGE ANDHERI MUMBAI	19
126	**G-4169**	MITHIBAI COLLEGE VILE - PARLE(W) MUMBAI (MS)	15
127	**G-4170**	YASHAWANTRAO CHAVAN COLLEGE OF SCIENCE KARAD SATARA (MS)	45
128	**G-4171**	WILSON COLLEGE CHOWPATTY MUMBAI	14
129	**G-4172**	K.J. SOMAIYA COLLEGE OF SCIENCE & COMMERCE MUMBAI	50
130	**G-4177**	HARIBHAI V DESAI COLLEGE PUNE (MS)	17
131	**G-4180**	HPT ARTS &RYK SCIENCE COLLEGE NASIK	36
132	**G-4187**	GURU NANAK COLLEGE OF SCIENCE BALLARPUR	27
133	**G-4192**	JAYSINGPUR COLLEGE JAYSINGPUR Dtt. KOLHAPUR	12
134	**G-4193**	GOGATE JOGALEKAR COLLEGE RATNAGIRI (MS)	11
135	**G-4194**	P V P COLLEGE PRAVARA NAGAR PO LONI Dt. AHMEDNAGAR (MS)	31
136	**G-4195**	THAKUR COLLEGE KANDIVALI (E) MUMBAI (MS)	25
137	**G-4198**	S P H MAHILA MAHAVIDYALAYA MALE GAON NASIK (MS)	23
138	**G-4199**	V.E.S.COLLEGE CHEMBUR MUMBAI	12
139	**G-4202**	SANGOLA COLLEGE SANGOLA DIST SOLAPUR (MS)	11
140	**G-4210**	KARMAVEER BHAURAO PATIL COLLEGE ISLAMPUR SANGLI	30
141	**G-4213**	INDIAN INSTITUTE OF SCIENCE EDUCATION AND REASEARCH PUNE	51
142	**G-4214**	NATIONAL DEFENCE ACADEMY KHADAKWASLA PUNE	126
143	**G-4215**	UM-DAE CBS MUMBAI KALINA CAMPUS MUMBAI	31

144	**G-4216**	ANNASAHEB WAGHIRE COLLEGE OTUR Dt PUNE	22
145	**G-4219**	R.D NATIONAL COLLEGE BANDRA-WEST MUMBAI	23
146	**G-4221**	AHMEDNAGAR COLLEGE AHMEDNAGAR (MS)	26
147	**G-4224**	WILLINGDON COLLEGE SANGALI (MS)	18
148	**G-4227**	SHRI S H KELKAR COLLEGE OF ARTS & SCIENCE DEVGAD SINDHUDURG (MS)	31
149	**G-4230**	ANNASAHEB AWATE COLLEGE MANCHAR	40
150	**G-4231**	S.I.C.E.S DEG. COLLEGE OF ARTS SCIENCE & COMM. AMBERNATH THANE	20
151	**G-4235**	BALWANT COLLEGE VITA (MS)	18
152	**G-4237**	MAHARAJA JIVAJIRAO SHINDE COLLEGE SHRIGONDA Distt. AHEMDABAD	22
153	**G-4238**	GOKHALE EDUCATION SOCITY'S ARTS, COMM. & SCIENCE COLLEGE JAWHAR	20
154	**G-4239**	R K TALREJA COLLEGE ARTS, SCI. & COMMERCE ULHASNAGAR THANE (MS)	11
155	**G-4240**	MIT ARTS COMMERCE AND SCIENCE COLLEGE PUNE (MS)	10
156	**G-4241**	PDEA'S BABURAOJI GHOLAP MAHAVIDHYALAYA SANGVI PUNE (MS)	44
157	**G-4242**	BHARATIYA JAIN SANGHATA'S ARTS SCI. & COMM. COLLEGE BAKORI PHATA	62
158	**G-4243**	SNJB'S KKHA ARTS, SMJL COMM. & SPHJ SCI. COLLEGE CHANDWAD Distt. NASHIK	14
159	**G-4244**	SHRI Dr. R G RATHOD ARTS & SCI. COLLEGE MUSTIZAPUR (MS)	92
160	**G-4245**	HON. BALASAHEB JADHAV COLLEGE ALE Distt. PUNE	54
161	**G-4246**	POONA COLLEGE PUNE (MS)	45
162	**G-4502**	K G ARTS & SCI. COLLEGE RAIGARH (CG)	10
163	**G-4506**	GOVT HOLKAR SCIENCE COLLEGE INDORE	30
164	**G-4524**	HOLY CROSS WOMEN'S COLLEGE AMBIKAPUR	26
165	**G-4535**	ST. ALOYSIUS COLLEGE JABALPUR	21
166	**G-4536**	PMB GUJRATI SCIENCE COLLEGE INDORE	16
167	**G-4542**	ST. THOMAS COLLEGE BHILAI (CG)	14
168	**G-4544**	ISLE IPS ACADEMY INDORE	55
169	**G-4553**	SHRI VAISHNAV INSTITUTE OF MANAGEMENT INDORE	25
170	**G-4556**	GOVT. NAGARJUN PG COLLEGE OF SCIENCE RAIPUR(CG)	47
171	**G-4557**	SETH P.C AGARWAL SMRITI MAHAVIDYALAYA NAWAPARA (CG)	32
172	**G-4560**	OP JINDAL UNIVERSITY PUNJIOPATHARA RAIGARH (CG)	21
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Prof B P Tyagi
Chief Coordinator (Examination)

ANNOUNCEMENT

C K MAJUMDAR MEMORIAL SUMMER WORKSHOP IN PHYSICS 2020

(From May 26 to June 05, 2020)

Venue: **S N Bose National Centre for Basic Sciences, Salt Lake, Kolkata**

Aim of the Workshop: To motivate students for learning Physics through innovative experiments and inspiring lectures by eminent scientists

Eligibility: Students who have appeared in third year B Sc final examination of any University of India and having Physics as an honours or major subject

* About thirty-five students will be admitted as registered participants
* Outstation participants will be provided three-tier sleeper class (non-AC) train fare
* Limited in-campus accommodation may be arranged if duly opted for

*Application in following format may be sent to the undermentioned contact persons by **e-mail** only.*

I. (a) Name of the applicant (b) Gender : M / F

2. (a) Address for communication (b) Permanent address

3. (a) Contact No. (b) e-mail ID

4. Name and address of the college (Current / Last attended)

5. Scanned copy of a passport-size color photo ***in jpeg format*** is to be attached

6. Scanned copy of the B Sc Part II / second year University Mark-sheet to be attached

7. Accommodation required: Yes / No

8. Guardian's particulars: (a) Name (b) Contact No. (c) Relationship with participant

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