



THE TIMES OF INDIA

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26th JANUARY
HAPPY
REPUBLIC
DAY

TODAY'S EDITION

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STUDENT EDITION

TUESDAY, JANUARY 26, 2021



WEB EDITION

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It's been more than seven decades since India became a Republic. With each passing year, the world's largest democracy, passed the litmus test to emerge as a strong and a vibrant nation. On this Republic Day, Gen Z, the future of India, sums up the essence of Indian Republic in their inimitable style...

REPUBLIC of India means.....

R = ROLE MODEL

From inventing zero to spreading the message of peace, India has been a role model for the world since ages. The legacy continues—By achieving the Independence non-violently to accomplishing the Mars mission in its first attempt at a frugal budget, we have constantly set an example for others in various fields. The recent vaccination drive against the coronavirus, the largest in the world, is yet another feat. No wonder, India is a **ROLE MODEL** for other countries.

SIDDHARTH KOTHARI, class IX, St Joseph's Boys' High School, Bengaluru

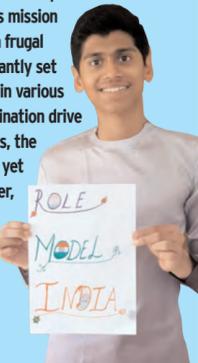
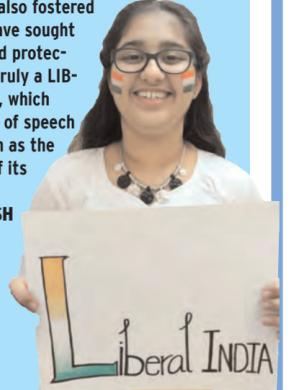


Photo: Getty Images

L = LIBERAL

The land, which is built on the essence of 'Vasudeva Kutumbakam', has embraced every culture, religion, class, creed, etc, without any kind of discrimination. We have also fostered people, who have sought our shelter and protection— We are truly a **LIBERAL** Republic, which holds freedom of speech and expression as the cornerstone of its democracy.

AARYA RAJESH BHANUSHALI, class X, SVDD English medium secondary high school, Mumbai



E = EGALITARIAN

Equality, embedded in the Preamble of India, has been the guiding soul for governing the country, since Independence. Despite few glitches, our lawmakers have ensured that equality, irrespective of caste, class, creed, religion, etc, is provided to one and all without any discrimination. So, Republic of India stands for an **EGALITARIAN** society.

ASMI AGARWAL, class IX, Zebur School For Children, Ahmedabad



U = UNITY

When India got its Independence, many thought the country would crumble because of its diversities. However, over the years, the diversity of our country has been the true strength in bringing about unity among the countrymen. We celebrate our diversities and take pride in it. Every festival is treated as a national festival. For the world with diverse views, India is an example of how to grow and stay **UNITED**, amidst all the diversities.

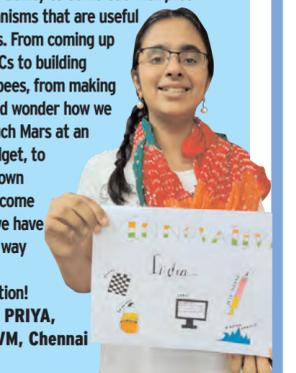
ARUNDHATI VARMA, class IX, RPS, Kalamassery, Ernakulam



I = INNOVATION

Ideas and innovation, which we famously call the Indian juggad, are ingrained among us. With minimum resources, we have the ability to come out with products and mechanisms that are useful in our daily lives. From coming up with low-cost ACs to building robots to save bees, from making the world sit and wonder how we managed to touch Mars at an unthinkable budget, to developing our own resources to become a solar power, we have **INNOVATED** our way to become an **atmanirbhar** nation!

SAI KRISHNA PRIYA, class IX, GTAVM, Chennai



P = PROGRESSIVE

India is the protagonist of a prose, penned by pundits, pertaining to the proficient technological progress. I take pride in India being the universal precursor of true progress— leading the world to the pinnacle of growth. We have a plethora of talent with a penchant for perfection, for which we have earned praise from the super powers. So, people's perception of an over-populated nation is now passé. Indian talent provides a panacea for every prevalent problem, the latest being Covaxin.

PREENA SENGUPTA, class IX, Pawar Public School, Hadapsar, Pune



B = BOLD

For me, our Republic stands for a **BOLD** nation that has withstood many adversities, and marched ahead by taking some **BOLD** decisions for the growth and development of the country. From testing nuclear weapons, despite strong resistance from the world, to fighting our neighbours to save our frontiers, from accepting the challenge to develop a vaccine against the coronavirus in a remarkably short period to initiating a mass vaccination drive against the virus, there is a positive synergy in our country that motivates us to be fearless without looking back, not to forget the bold economic reforms and the liberalisation policies that has made us one of the fastest-growing economies in the world.

INAYAT KAPOOR, class XII, Bhavan Vidyalaya, Panchkula



C = CONSISTENT

Since becoming an Independent nation, India has performed consistently— socially, economically, politically, and in every other sphere. Our political transition has always been smooth. The economic chart, driven by infrastructural growth, has been phenomenal. We have consistently shown the world that we are not scared to take decisions that is beneficial for the country. So, for me, **CONSISTENCY** is the true core of our Republic.

DEVINA SINGH, class XII, Shikshantar School, Gurgaon



FORMAT & TIPS

- Your new format of the question paper is categorised into very short answer type and short answer type questions where you need to be concise and to the point whereas for long answer type questions, write descriptive answers in points with illustrative examples and highlight the key points, it enhances visibility.
- Do remember the SI units of all entities. Due to marking for all steps, marks for your final answer will be given for both the numerical value and the unit.
- Follow up your text book concepts. Do not rush and finish the topics.
- Make a formula copy and revise and write all the formulae chapter-wise. Do not ignore the numerical problems. They need to be mastered as at times they are direct formula based and at times are blended with the understanding of the topic. For example:

FOR SOLID STATE

1 Calculation of number of particles / atoms / ions in a Unit Cell :

Type of Unit Cell	Number of particles per	Relationship between edge Unit Cell length (a) and radius (r) of atom/ion
Simple cubic	1	$a = 2r$
Body centred cubic	2	$a = \frac{4}{\sqrt{3}}r$
Face centred cubic	4	$a = 2\sqrt{2}r$

3 Density of unit cell (d) = $\frac{Z \times M}{a^3 \times N_A}$ Where Z is rank of unit cell (no of atoms per unit cell) M is molar mass/ atomic mass. 'a' is edge length of the cube. 'a³' is volume of cubic unit cell and N_A is Avogadro number.

4 Packing efficiency = $\frac{d \times N_A}{M} \times \frac{4}{3} \pi r^3 \times 100$

Here 'M' is molar mass 'r' is radius of atom, 'd' is density and N_A is Avogadro's number (6.022 × 10²³ mol⁻¹)

Rank of unit cell can be computed by packing efficiency value

Type of Unit Cell	Packing efficiency	Rank of Unit Cell
SC	52.4%	1
BCC	68%	2
FCC	74%	4

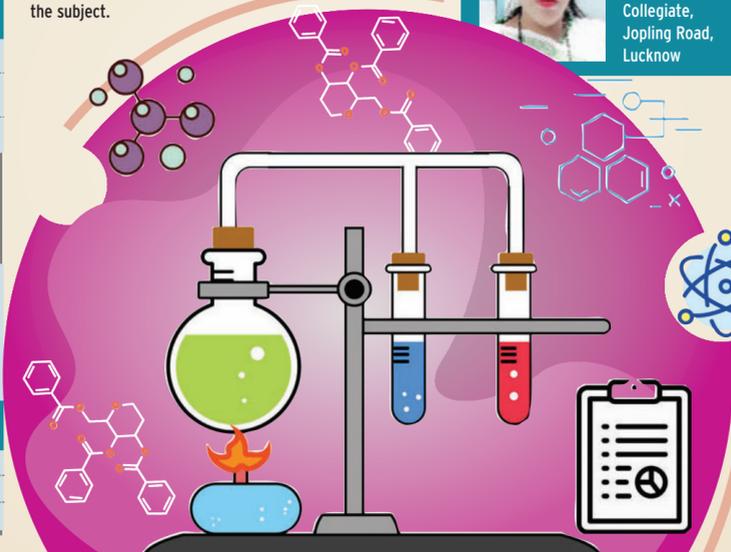
CHEMISTRY CORE COMPETENCIES

THIS ACADEMIC YEAR HAS CERTAINLY BEEN TOUGH ON STUDENTS. EXAMINATIONS ARE NEARING AND STUDENTS OF CLASS XII NEED TO GET THEIR STUDIES STREAMLINED AND AIM FOR GOOD MARKS AS IT IS IMPORTANT FOR SECURING A SEAT IN TOP COLLEGES. THE ISC BOARD PRIDES ITSELF FOR READYING STUDENTS FOR THE EVER-CHANGING WORLD WHERE THE PATH ISN'T ALWAYS CLEAR AND DEMANDS ADAPTABILITY BY REDUCING THE SYLLABUS IN THE MAJOR SUBJECTS, MAKING IT MORE STUDENT-FRIENDLY.

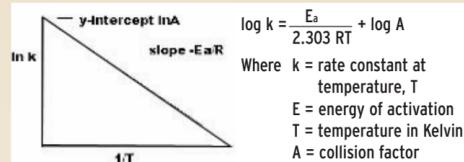
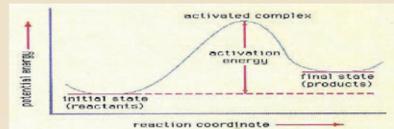
Chemistry being an important subject for both Maths and Science streams, the syllabus has been reduced keeping the major topics intact to foster acquisition of knowledge and understanding of terms, concepts, facts, processes, techniques and principles related to the subject.



Rachna Srivastava, Senior Chemistry teacher, The Lucknow Public Collegiate, Jopling Road, Lucknow

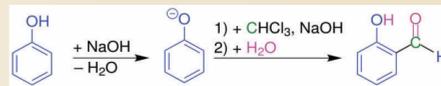


- Draw and practice the important graphs



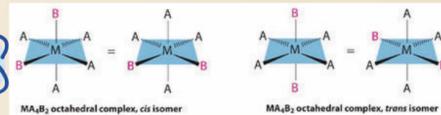
- For learning and understanding Organic Chemistry split the chapters topic wise.

- Make foot notes for Name reactions Reimer-Tiemann Reaction



- Mind maps for conversions and preparations of the compounds.
- Chemical tests at least one of each compound mentioned in the syllabus.

For Inorganic Chemistry do lots of practice problems which involves chemical reactions until you have a firm understanding of each one. Coordination Chemistry being one of the most logical and important chapter of this branch, memorize all the important topics related to it by practicing as many mock questions possible. Make short bullet notes of selective topics in one to memorize.



Coordination Number			
3	4	5	6
trigonal planar	tetrahedral	trigonal bipyramidal	octahedral
pyramidal	square planar	square pyramidal	trigonal prismatic

- Start attending the practical classes as ISC will have pen and paper exams taking into account online exams are not possible in remote areas due to network issues. To score maximum, practical component is also key.

- Make a list of unanswered questions and discuss them with a teacher or peer.
- Read the pupil analysis provided by the Board for examiner's comments and suggestions on the past year papers. I hope these tips will be helpful for you to prepare chemistry well for the forthcoming board examinations.

JUST REMEMBER, DON'T STRESS, DO YOUR BEST, FORGET THE REST!



MY SCHOOL PROJECT

THE OMNI SPY CAR

THE PROJECT

The project that I have made is the OMNI Spy Car.

- O-Observation
- M-Metal Detection
- N-Navigation
- I-Intelligence

- The vehicle has been designed in a way that it can prove to be of great use to the Indian Army.

- The car is equipped with a metal detector. It also has a spy camera, an Arduino Radar System and is fully remote controlled.

THE INSPIRATION FOR THE IDEA

- Every day we hear many incidents of terrorists entering and capturing areas in our territory, often using them as their hideout.

- The search operations initiated to eliminate the enemy result in the loss of lives of our brave soldiers.

- To help in such search operations and to prevent any harm to our soldiers, I came up with the Spy Car idea.



THE PRINCIPAL FEATURES

- The car has been installed with a camera and is used to record the audio/video of the surroundings and send it to the host computer in real-time.
- The spy car's primary purpose is to observe any suspicious activity in an area.
- The spy car can be used to guide the mission operators and also be used as a surveillance unit in the terrorist base camps even in remote areas where a person can't reach.
- It has an Arduino Radar System that can observe any unknown activities at an angle of 180° and can measure and calculate the object's distance with respect to the car.

- The car is also installed with a metal detector as a safety device, for instance if any landmine comes in contact with the metal terminals that are extended outwards, the buzzer will be set off and lights will glow so as to alert the troops.

ACHIEVEMENT

The OMNI Spy Car was exhibited at an International Science Fair- "YASH" organised by FCSI and was awarded the Gold Medal in January 2020.



Jagrit Joshi, class XII, The Indian Academy, Nehrugram, Dehradun

TIPS TO SCORE BETTER IN SCIENCE

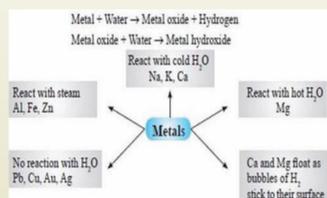
COVID-19 has forced us to suspend physical classrooms and shift to online classes. Online classes are no easier than classes offered in the traditional classroom setting and, in some cases, can even be more difficult. Regardless, students of Class X have to appear for the board exams. Marks scored in class X board exams will act as a key factor for getting admission to higher secondary schools. Following are some tips, which will help students to score better and ace the Science board examination.



GENERAL TIPS FOR SCIENCE

- Read NCERT science books thoroughly.
- Be aware of the rationalised portion.
- Practice class X board question papers of previous years. You can download the pdf from the official website of the respective boards.
- Practice activity-based questions.
- Set weekly goals.
- Take five minutes daily to organise digital files. (e.g. subject wise, chapter wise, and other data).
- Remember to maintain a notebook for each subject.
- Solve online M.C.Q. test with a time limit.
- Use Mind Map, simply take the central subject and organize your notes around this point.

(Example of mind-map to represent the Reaction of Metal with water)



PHYSICS

- Prepare a handbook specifically for formulae and SI units.
- Be well-versed with the diagrams (ray diagrams, circuit diagrams, symbols, etc.)
- Practice numerical on the series and parallel combination of resistances. Most of the time the numerical problems on lens and mirror are also asked.
- Do not try to mug up derivations. Rely on your understanding not on just memory.

CHEMISTRY

- Prepare a handbook specifically for important chemical equations and colours of different substances.
- Practice basic electronic dot structures.
- Learn elements of periodic table using funny mnemonics.
- Always write balanced chemical equations.

BIOLOGY

- Read each line carefully by putting a pencil over letters and underline or circle those words in which you find difficult to understand.
- Watch the animated version because it is easy for the brain to understand in audio-visual mode.
- Draw neat and detailed diagrams.
- Be aware of the complex terminologies in biology.



Anushri Nair, educator, Zebar School For Children, Ahmedabad

EXAM ETIQUETTE

The exam day holds special importance in a student's life. No matter how well you prepare for the exam, if you are not able to put all your knowledge in the right way on your answersheet then all your hard work goes in vain. It is a known fact that students often feel anxious and nervous in the exam hall. It can be made easy by following these few tips...

- SLEEP WELL at night before exams and have a healthy breakfast the next morning. Avoid the last minute preparation which leads to anxiety, panic and stress.
- DEVELOP SELF-CONFIDENCE, faith in your hard work preparations. Personality plays an important role while appearing for exams which makes you feel energetic and confident. So have a charming face, dress well and good personal hygiene.
- IN THE EXAM HALL, carry all necessary materials, follow verbal and written instructions. Read questions carefully and plan a strategy for writing answers. Avoid distraction and keep time for revision.
- DO NOT waste time on questions you are not sure of and do not speculate marks and divert your attention and concentration. If you have prepared well, put your best foot forward and no one can stop you from achieving what you deserve.

C Sasikala, School Counsellor, SBOA Matriculation Higher Secondary School, Coimbatore

