

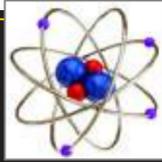


THE TIMES OF INDIA

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TODAY'S EDITION

► Check out the journey of atomic structure, as your teacher explains it in an interesting way
PAGE 2



► Want to boost your immunity during tough pandemic time? Practise yoga, assert yoga experts
PAGE 3



► La Liga results: Barcelona makes winning start without Messi, defeat Real Sociedad
PAGE 4



STUDENT EDITION
TUESDAY, AUGUST 17, 2021

CLICK HERE: PAGE 1 AND 2

KABUL FALLS TO TALIBAN

GAME OVER!

Chaos at Kabul airport, as thousands rushed to exit Afghanistan

US troops were forced to fire warning shots at the Hamid Karzai International Airport in Kabul to prevent crowd, as thousands of Afghans gathered at the airport to seek an evacuation flight, amid Taliban's takeover of the country. The US troops are in charge at the airport, where they are reportedly prioritising the evacuation of the American Embassy staff on military flights. Witnesses reported seeing the prone, bloodied bodies lying on the ground just outside the terminal building. The airport resembled a chaotic bus station, as hundreds of people jostled, pushed and shoved to get on to a waiting plane. The Taliban has declared the war in Afghanistan over after its fighters swept the capital Kabul and President Ashraf Ghani fled the country.



WHO WILL PAY THE PRICE?



- 1 Afghan youth will have to deal with stone-age concepts and rules, such as no clapping during sports events, no cinematography, no hanging pictures in homes, and no dancing. Also, they will be forced to cover their heads
- 2 Curbs on women's human rights
- 3 Restrictions on freedom of the press
- 4 Progress made in the fight against global terrorism will go for a toss

THE STORY, SO FAR



- President George W Bush launch his 'war on terror' in response to the September 11 attacks that killed around 3,000 people, masterminded by Osama bin Laden, with air strikes on Afghanistan on October 7, 2001
- In power since 1996, the Taliban are soon defeated and flee the Afghan capital Kabul on Dec 6
- Hamid Karzai is appointed to lead an interim government and NATO begins to deploy its International Security Assistance Force
- Afghanistan's first election under a new system held on October 9, 2004. Karzai wins 55 per cent of the vote
- Karzai is re-elected on August 20, 2009, in elections that



are marred by massive fraud, low turnout and Taliban attacks

- In 2009, President Barack Obama, who had campaigned on a pledge to end the Afghanistan war, doubles the number of US troops to 68,000. In 2010, it reaches around 100,000
- Osama bin Laden is killed on May 2, 2011 in a US special forces operation in Pakistan
- On June 22, 2011, Obama announces the beginning of a troop withdrawal, with the departure

by mid-2012 of 33,000 soldiers

- In June 2014, Ashraf Ghani elected president but voting marred by violence and a bitter dispute over claims of fraud
- In December 2014, NATO ends its 13-year combat mission but a number of troops remain to train the Afghan military
- In 2015, the Taliban make their greatest military advances since being ousted



- Ghani is declared victorious for a second term on February 18, 2020, an announcement rejected by his rival and former minister Abdullah Abdullah, who vows to form his own parallel government
- On February 29, 2020, the US and the Taliban sign a historic deal in Doha under which all foreign forces would leave Afghanistan by May 2021
- A power-sharing deal ends the bitter Ghani-Abdullah feud in May
- On May 1, 2021, the US and NATO start

withdrawing their 9,500 soldiers. US President Joe Biden says that the US troop withdrawal will be completed by August 31, before the 20th anniversary of the 9/11 attacks

- The Taliban captured their first provincial capital, Zaranj in the southwest, on August 6, 2021. Other major cities fall within days, including Kandahar and Herat
- The insurgents fully encircle the capital on August 15 with the capture of Jalalabad in the east



Quote unquote

I don't think we will see a third wave, which will be as bad as the second wave. The general feeling is that adults are getting vaccinated, children are not being vaccinated, and therefore if there is a new wave, it will affect those who are more susceptible. Children will be more susceptible. A Covid-19 vaccine for children will come up in a month or two, so that they could also be immunised against the disease. Vaccines are helping in preventing severe disease and death from Covid-19. Infections are still happening but those infected are predominantly those who have not been vaccinated. That's why we are saying more and more people need to get vaccinated

Dr Randeep Guleria,
Director of the All India Institute of Medical Sciences, New Delhi



Prime Minister Narendra Modi on Monday fulfilled his promise and had ice cream with two-time Olympic medalist PV Sindhu when he hosted the Indian athletes at his residence. Back in July when the PM had a video interaction with Tokyo-bound Indian athletes, he had spoken about how Sindhu was barred from having ice cream before the Rio Olympics, and asked her if she was going to do the same this time around. During the interaction, Sindhu had said, "Since I am preparing for the Olympics, I have to do some sort of diet control. So I don't eat ice cream so much, only once in a while." After that, PM Modi had promised that he would have ice cream with her after the competition concluded

A PROMISE NOT BROKEN

FACTOID

703 KM

National Highways have been constructed with the use of waste plastic in "wearing coats of flexible pavement", according to Nitin Gadkari, Union minister for road transport and highways. Plastic roads consist of 6-8 per cent plastic, while 92-94 per cent is bitumen. In 2016, Gadkari had announced the usage of plastic waste in road construction. Since then, plastic waste has been used in constructing roads in 11 states

Twitter to update follow button redesign after complaints of eye strain

Twitter has readjusted the contrast on its buttons, following feedback about its design updates. Several users reported eye strain, headaches, and migraines due to the higher visual contrast in the colours of buttons and links, as well as the new font, 'Chirp'. The changes in contrast also included a black follow button that's filled in if you're not following someone, which has caused confusion for many people, who are used to it being the other way around. It's not clear yet if that change will be reversed.

Twitter currently has toggles in its accessibility menu for settings like increased colour contrast and reduced motion, as well as display settings that let people choose between light and dark themes or scale text sizes

TECHAWAY

Walker on a mission to save Earth

Jude Walker, an 11-year-old boy, is on an odyssey he hopes will help save the planet: he walked to London from northern England in a bid to garner support for a carbon tax to tackle carbon emissions. Partly inspired by activist Greta Thunberg, Walker from Hebden Bridge in Yorkshire, braved hills and rain, along his 210-mile trek to the British parliament in Westminster, central London. Walker stresses that a carbon tax is a crucial step to slow down humanity's current path to what he called a dystopian world. "We now know a lot more about climate change and I think a carbon tax would be definitely one of the most-useful solutions to it," Walker said. He walked 10 miles a day, accompanied on each day's walk with either members of his family or friends. He wants people to sign a petition calling for a carbon tax. Currently, just under 57,000 people have signed it. If it gets 100,000 signatures, it will be considered for debate in British parliament.

Global warming is dangerously close to spiralling out of control

Spotlight



and the world is already certain to face further climate disruptions for decades, if not centuries, to come, a United Nations climate panel said this month

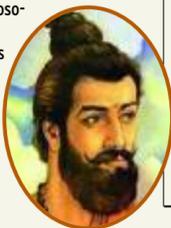
- While most political leaders and investors accept the science behind climate change, there are deep divisions over what must be done to stop it, how radical the response should be, and who should pay for it

The Modern Atomic Model's Journey & THE DISCOVERY OF ATOMIC STRUCTURE

I had a wonderful time teaching my students atomic structure and at the same time they too were very curious and enthusiastic about the structure of an atom. I could manage to arouse their interest and kept them curious to know more and more. At the end of the chapter I was overwhelmed to hear "Wow! What a systematic journey to reach modern atomic model!" from one of my students. So here we go, let's start the journey...

CLASS: VIII, ICSE
SUBJECT: CHEMISTRY

Atoms are the building blocks of matter. In ancient times, Indian and Greek philosophers were puzzled about the nature of matter. According to a great Indian philosopher Maharshi Kanad, matter consisted of indestructible particles called 'paramanus.' The Greek philosopher Democritus called paramanu as 'atom.'



Maharshi Kanad

1808, John Dalton's Atomic Theory

Dalton was right that atoms take part in chemical reaction but the later research proved that most of the features of Dalton's theories were incorrect. Dalton suggested that atoms are indivisible but the early twentieth centuries showed that atoms are divisible and composed of sub-atomic particles (electrons, protons and neutrons).

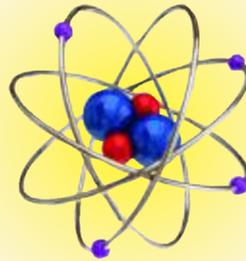
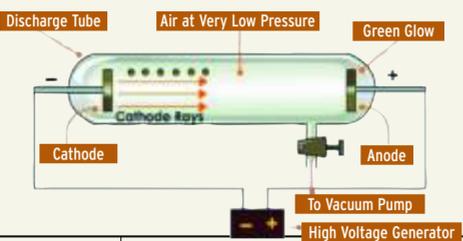


John Dalton

FACT: The existence of sub-atomic particles was proved by the fact that an atom is electrically neutral.

Discovery of Electron

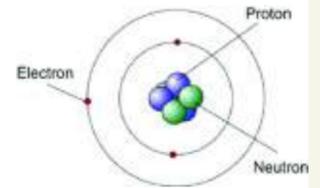
Electrons were discovered by J J Thomson but cathode rays were discovered by William Crookes. In his experiment, William Crookes observed that on applying a high voltage to a gas contained at low pressure in a sealed tube (called a gas discharge tube), rays were emitted from the negative terminal, called 'cathode rays'. Thomson applied the electric field in the path of cathode rays and observed that cathode rays were deflected towards the positive plate of the electric field. This showed that cathode rays contained negatively charged particles called 'electrons'.



Discovery of Nucleus, a breakthrough experiment

Rutherford's gold foil experiment/alpha particles scattering experiment: Rutherford selected alpha particles because they had high energy and were heavier as well. He discovered positively charged centre called as nucleus (contains protons); electrons revolve around the nucleus in circular path.

Discovery of neutrons (third sub-atomic particle). In 1932, James Chadwick discovered neutrons.



Finally the Modern Atomic Model



1803

Dalton proposes the indivisible unit of an element is the atom.



1904

Thomson discovers electrons, believed to reside within a sphere of uniform positive charge (the plum pudding model).



1911

Rutherford demonstrates the existence of a positively charged nucleus that contains nearly all the mass of an atom.



1913

Bohr proposes fixed circular orbits around the nucleus for electrons.



1926

In the current model of the atom, electrons occupy regions of space (orbitals) around the nucleus determined by their energies.



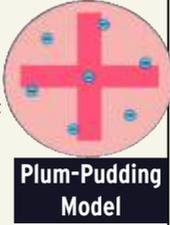
Dimple Bafna, teacher, Aavishkar Academy, Bengaluru

Discovery of proton

Goldstien used same apparatus and instead of normal cathode he used perforated cathode (with small holes) and observed that along with cathode rays, there were rays opposite to the cathode rays in all respect, emitted from the anode. This was named as canal rays or anode rays which consisted of positively charged particles (Rutherford called these particles as protons.)

J J Thomson model

After the discovery of proton and electron to show the arrangement of those particles in an atom, J J Thomson worked out first model: Plum pudding/water melon model. This model failed to explain many experimental observations about atoms.



Plum-Pudding Model

Drawbacks of Rutherford's model of atoms

Any charged particle moves in a circular path tends to radiate energy, so electrons (charged particle) in constant motion would radiate energy, would gradually lose energy and fall into nucleus and atom would collapse. Therefore, Rutherford model failed to explain the stability of atom. Hence there was a need of another model.

Bohr's Atomic Model

Neil Bohr made slight modification in Rutherford's model. He suggested that electrons revolve in fixed orbits or shells around the nucleus with each orbit associated with a fixed amount of energy. The electrons present in these shells neither lose nor gain energy until some external force is applied on it. He explained the stability of an atom by this theory.

YOUR STUDY CORNER

The inspiration, dedication, determination and the belief that you have to excel in exams depend upon your surroundings and ambience in which you sit to study i.e. your study room...

- It should be airy and preferably your study table placed in front of a window from where you can see a blue patch of sky and some greenery. Walls, if white, are better as they reflect the light properly.

- The walls shouldn't be crowded with decorations or pictures, especially the one in front of you. It should only have your study time table/exam date sheet/important formulas/rules/tips prepared by you.

- Just in front of your eyes should be a reminder "I will do it. I can do it."... to keep you inspired.

- Keep your parents' picture on your table to remind you that you have to make them proud.

- Keep a watch to check time spent in studies, a table lamp or a light focussing on the study spot on the table.

- Don't keep the whole stack of course books on the table or rack as it may make you feel overloaded and fearful too.... just keep the stuff related to one subject in front of you at a time.

- Keep a water flask, some energy drinks and healthy and light eatables beside you to feel good. Keep some toffees as well as they prove to be best energy boosters.

- Don't forget to place an indoor plant or a green stalk in a vase on the table as green passes on freshness and composure.

- If you don't have a separate room then mark a place in a room for yourself as a small study corner. Remember the positivity of the place you sit to study doesn't come with a separate room or study table always, your humble corner can be made convenient and productive just with keeping your spirits high and self belief soaring.

Geeta Saini, Ex NIE Coordinator, HAL School, Lucknow



The Living World: In-depth study helps to answer queries assertively

Directions:

In the following questions, a statement of assertion is followed by a statement of reason.

MARK THE CORRECT CHOICE AS:

- If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- If Assertion is true but Reason is false.
- If both Assertion and Reason are false.

1 **ASSERTION:** Saliva contains Amylase enzyme.
REASON: Amylase digests proteins.

2 **ASSERTION:** Molecular movements are essential for life.
REASON: Organisms made of these molecules need continuous repair and maintenance.

3 **ASSERTION:** In plants there is no need of specialised respiratory organs.



REASON: Plants do not have great demands of gaseous exchange.

4 **ASSERTION:** Bile is essential for digestion of lipids.
REASON: Bile juice contains enzymes.

5 **ASSERTION:** Arteries are thick-walled and elastic in nature.
REASON: Arteries have to transport blood away from the heart.

6 **ASSERTION:** Pyruvate is a six-carbon molecule
REASON: It is produced in the cytoplasm during glycolysis.

7 **ASSERTION:** Opening and closing of the stomatal pore is the function of guard cells.
REASON: Stomatal pores are the site of

CLASS: X, Biology, CBSE

gaseous exchange by diffusion.

8 **ASSERTION:** Diffusion does not meet high energy requirement of complex body designed multicellular organisms.
REASON: Diffusion is a fast process, but only occurs at the surface of the body.

9 **ASSERTION:** The inner lining of the small intestine has numerous finger-like projections called villi.
REASON: The villi increase the surface area for absorption.

10 **ASSERTION:** The purpose of making urine is to filter out undigested food from intestine.
REASON: Kidneys filter the waste and produce urine.

Geetha Reddy, Science faculty, Sister Nivedita School, Ameerpet, Hyderabad

Answers:

- | | | | |
|--------|---------|--------|--------|
| 1 (c) | 2. (a) | 3. (a) | 4. (c) |
| 5. (b) | 6. (d) | 7. (b) | 8. (c) |
| 9. (a) | 10. (d) | | |