

Class - 9 Biology Isha

- L-1. Learn all the terms and branches of Biology and Applied Biology. Solve Exercise portions.
- L-2. Draw a well labelled diagrams of plant cell and animal cell. Learn Table of parts of cell their main characteristics and chief functions.
- L-3. Draw well labelled diagram of
- (i) Meristematic tissue
 - (ii) Parenchyma cells
 - (iii) Collenchyma cells
 - (iv) Sclerenchyma cells
 - (v) Xylem and Phloem cells.
 - (vi) Different kind of epithelial tissues and nerve cell.
- Learn summary of plant tissue and animal tissue.
- L-4. Draw diagram of Bisexual flower and learn its parts.
- L-5. Draw diagram of germination of pollen and fertilization.
- L-6. Draw the structure of Bean and Maize seed.

9th Class

Geography

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CHAPTER - I

Earth as a Planet

Q.1 Why is the earth a unique planet?

Ans It has liquid water, plate tectonics & an atmosphere that shelters it from the worst of the sun rays.

Q.2 Why the earth is called the blue planet?

Ans Earth is the only planet in our solar system that has a large amount of liquid water. About 71% of the surface of earth is covered by liquid water. Because of this people sometimes call it the blue planet.

Q.3 What is the surface of the earth made up of?

Ans The earth's surface is made up of rocks, sand, soil & many other minerals.

Q.4 Name a planet that cannot support life. Give reason for your answer.

Ans

There are lots of planets that cannot support life, they are Venus, Jupiter, Uranus, Neptune, Saturn.

Because to support life there are some circumstances like weather, oxygen level, water level, temperature are essential to support life on a planet. Only earth is eligible of this circumstances.

Q.5

Name the various realms of the earth?

Ans

There are four realms of earth -

- 1) Lithosphere
- 2) Hydrosphere
- 3) Biosphere
- 4) Atmosphere

Q.6

State three factors that have made life possible on the planet earth.

Ans

Three factors that have made life possible on earth is right amount of oxygen

△ other gases, right amount of sunlight for perfect weather △ right temperatures for life to flourish.

Q.7 Why is the shape of the earth described as an oblate spheroid?

Ans Because the measurements of the earth at the equator & poles show that it has a slight bulge at equator while it is slightly flattened at the poles.

Q.8 Give two proofs about the shape of the earth?

Ans 1.) Lunar eclipse - The shadow cast by the earth on the moon during lunar eclipse is always circular. This proves that the shape of the earth is spherical.

2.) Horizon is circular - As viewed from the deck of a ship the horizon appears to be circular in shape.

Q.9 What is the significance of the atmosphere on earth as compared to other planets?

Ans The atmosphere is covered with perfect amount of nitrogen (78%), oxygen (21%) & other gases. Unlike other planets the atmosphere of earth is not so dense & not so thin that helps earth to exist life.

Q.10 List the conditions favourable to life on earth.

Ans

- 1.) It receives the right amount of heat necessary for life
- 2.) Earth's atmosphere contains adequate amount of oxygen, nitrogen along with other gases.
- 3.) Gases like hydrogen, helium & Ozone acts as a blanket protecting us from harmful U.V rays.
- 4.) Earth's water cycle is its most unique feature.

B. Explain the given terms—

- 1.) Terrestrial Planets — These planets are the inner planets closest to the sun i.e. mercury, venus, earth & mars.
- 2.) Oxygen cycle — The cycle where atmospheric oxygen is converted to CO_2 in animal respiration & regenerated by green plants in photosynthesis.
- 3.) Unique Planet — As earth is called a 'unique planet' because it is the only planet that supports life.
- 4.) Water Cycle — The way that water moves between being water vapour to liquid & then back to water vapour.

5) Biosphere - The layer of planet earth where life exists.

6) Environment - The surroundings or conditions in which a person, animal or plant lives or operates.

7) Atmosphere - The envelope of gases surrounding the earth is called atmosphere.

C Give reasons for the following -

1) The earth is the only habitable planet.

A Because it is at the right distance from the sun, it is protected from harmful solar radiation / U.V rays & it has the right amount of water & carbon.

2. The earth's shape is Groid.

A Because the earth is shaped like an orange, slightly flattened at the poles with a bulge at the equator.

3. The earth is the home of humankind.

A Human beings live on earth. It provides them with all the necessities of life other than some such as sunlight. Human's live on earth. We call the place where we live as our home. So, since we human beings live on earth, we call it our home.

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Chapter - 2 Latitudes and Longitudes

Q: Answer the following questions briefly:

1. Why do we need to locate places on Earth?

Ans We need to locate places on Earth to know their exact location.

2. What do you mean by the latitude of a place?

Ans An angular distance of a point on the earth's surface from the centre of the earth is known as the latitude of a place.

3. What is meant by Prime Meridian?

Ans Longitude of zero degree passing through Greenwich near London is known as the Prime Meridian.

4. Explain why there is no higher latitude other than 90 degrees North and South.

Ans Because that is the maximum size of a right angle. After 90° the size of the angle begins to decrease as you start down the other side of the planet.

5. Explain why lines of Longitudes are called Meridian of longitude.

Ans Because meridians are great circles which are not parallel to each other but intersect each other at north and south poles. Some stands true of the longitudes. All longitudes are great circles which meet at the poles.

6. State two properties of the lines of latitude.

Ans * Every parallel of the latitudes makes the full circle.

* Each latitude is parallel to other latitude.

7. State two properties of lines of longitudes.

Ans * Meridians are drawn vertically.

* Every meridian is a semi-circle.

8. The distance between two successive parallels of latitudes is 111 km. Explain.

Ans The degree of latitude are parallel, so the distance between each degree remains almost constant. Each degree of latitude is 111 km.

9. What are limits of two temperate zones?

Ans * In North, temperate zones extends from

23.5° to Arctic circle 66.5°N.
In South, Temperate zone extends from
23.5°S to the antarctic circle 66.5°S
latitude.

10. Why are the places in Torrid zone
hotter than in the other zones?

Ans Torrid zone lies near the equator and
because of the direct sun rays falling
on equatorial region, torrid zone
are warmer than the other.

11. Why are the places in the Frigid zone
warmer than in the other zones?

Ans The polar regions have a very cold
climate. These regions are far away
from the equator. They get less direct
sunlight than other areas.

12. What is local time of a place fixed?

Ans Local time of a place is fixed according
to the movement of the sun in the sky
based on which it is calculated.

13. Is it correct to say that local time is
the sun time?

Ans Yes, as the local time depends upon the sun's

and sunset of that place. For example:-
if it will be sunrise in India it will
be sunset in America.

14. If the GMT at 0° longitude is 12 noon, find
the local time of a place A (30° E).

Ans The sun moves 1° in 4 minutes
and the required place is 30° E of the
Prime Meridian, so the local time of
A is $30 \times 4 = 120$ min or 2 hours
ahead of GMT at 0° longitude. The
local time of place A is 2 P.M.

15. Why is the Standard Time considered
necessary?

Ans We calculate local time by comparing
and calculating distance of longitudes
between that place and 0° longitudinal
place. So to avoid such time difference
in a same country or region.

16. What are Time zones? How many time
zones do we have?

Ans Time zone is a region of a globe that
tell us standard time. We have 24 time
zones.

17. London experiences a lower temperature than Singapore throughout the year. why?

Ans It is so because of their location on the globe. Singapore lies at the latitude of 1.1°N so it has equatorial climate. Climate of London is same as that of temperate areas.

18. What is International Date line? Describe the use of this line.

Ans International Date line is an imaginary line on earth's surface defining the boundary between one day and the next. 180° longitude is known as International Date line. On crossing this line a person loses or gains one day. So it can cause much confusion of having different dates in the same country.

19. why do some countries have many time zones?

Ans If we had one single time zone for earth, noon would be the middle of the day in some places but it would be morning, evening and the middle of night in others. Since different parts of earth enter and exit daylight at different times we need

different time zones.

20. What are Small Circles?

Ans. Arcs circles that cut the earth but not into equal halves are known as Small Circles.

Small circles include all lines of latitude except the equator, Tropic and Arctic and Antarctic circle.

21. Except for the equator, other parallels of latitudes are not Great Circles. Why?

Ans. Because other parallels of latitude do not lie on the plane passing through the center of earth nor do they divide the earth into two equal halves, which only equator does.

22. How is the use of local time inconvenient in practical life?

Ans. Because if everyone starts using local time then there would be a confusion. There is a time difference between each longitude of 4 mins and if local time was used there would be total confusion even the technology won't be able to calculate it properly but the use of

standard time prevents this confusion.

Q3. What is a grid?

Ans. Grid is a set of numbered lines printed on a map so that the exact position of any place can be referred to it as a network of intersecting parallel lines whether real or imaginary.

Q4. Who was the first mathematician to have measured the circumference of the earth?

Ans. Eratosthenes

Q5. Name the important climatic zones of the world.

Ans -
- Torrid zone
- Temperate zone
- Frigid zone

Q6. State the rate of change of time with longitude.

Ans. The rate of change of time per longitude is 4 min.
As the degree of longitude increases, time also increases.

27. Explain how latitude and longitude help to locate position of a place on globe.

Ans. Latitudes and longitudes are imaginary lines on the globe. The latitudes run east and west whereas longitudes run north and south. Using the longitudes and latitudes the angular distance of the place can be determined and the location of a place in degrees can be obtained.

28. (i) What does PP' represent?

Ans. Latitude

(ii) What does TT' represent?

Ans. Longitude

(iii) What is the latitude of place X?

Ans. $40^{\circ}N$

29. Distinguish between:

(i) Local time

Standard time

— Local time implies the time of a place determined on the basis

It refers to fixed time for places falling in the same

of apparent movement of the sun.

- It is the time of a particular country.

- It is the particular time of a part of the world.

- It changes usually

meridian, set in a country by law.

- It is the official local time of a region.

- It is the time officially used in a country.

- It remains same.

(ii)

Parallels

- Parallels are also known as latitudes.

- Parallels run from east to west.

- They never intersect with each other.

- The first parallel is the equator.

Meridians

- Meridians are also known as longitudes.

- Meridians run from north to south.

- They intersect at the north and south poles.

- Greenwich is the prime meridian.

(iii)

Equator

- It is an imaginary horizontal line.
- It divides world into northern and southern hemispheres.
- It is a 0° latitude.

Prime Meridian

- It is an imaginary vertical line.
- It divides world into western and eastern hemispheres.
- It is a 0° longitude.

Q: Define these terms:

1. Indian Standard time - It is the time zone observed throughout India.
2. Greenwich Mean time - It is the mean solar time at the Royal Observatory in Greenwich, London, reckoned from midnight.
3. Small circles - Small circles are circles that cut the earth but not into equal halves.

Q: Give reasons for the following:

1. Latitudes and longitudes are always expressed in angles.

Ans: Latitudes and longitudes are expressed

terms of degrees or angles because degrees are parts of circles and lines running around the world are circles.

2. Large countries have many time zones.
Ans Because they have a large width and a vast east to west extent.

3. The International Date Line is not a straight line like other longitudes.
Ans Because it does not pass over any of the oceanic islands in that region and causes confusion of date.

4. A person gains time as he travels towards east.
Ans Because the sun rises from the east and if he moves towards east where the sun is rising then he will get a day more as well as gain time.

5. The intervals between successive parallels are constant.
Ans Because latitudes run parallel to each other and never meet the other latitude.

6. A person travelling from Mumbai to London has to alter his watch.
Ans Because both cities lie on different time zones. They are situated across different lines of longitude.

7. The difference between I.S.T and the G.M.T is 5 hours and 30 minutes.
Ans Because I.S.T is calculated on the basis of 82.5° E longitude which is just west of the town of Mirzapur, near Allahabad in U.P. The longitude difference between Mirzapur and U.K's royal observatory at Greenwich translates at an exact time difference of 5 hour 30 min.

Note:— Few answers for B part and answers for C part are already given in above question answers.

For E part refer Diagrams given in the book:—

- 1) Fig-2.7
- 2) Fig-2.10
- 3) Fig-2.3

It lasted from the age of 50 to 75 years.

4) The Sanyasa Ashrama: This period lasted from the age of 75 to 100 years.

16. State briefly the change that occurred in the position of the Brahmins in the Later Vedic Age.

In the Later Vedic Age the Brahmins enjoyed many privileges. They came to be considered as gods on earth.

Chapter - 2

The Vedic Period

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Q 1 Name the two categories of Early Vedic Literature. Why was the Early Vedic Literature known as Shruti?

The two categories of Early Vedic Literature are the Shruti and the Smriti.

The Early Vedic literature was known as shruti because they are passed orally from generation to generation.

Q 2. Name the four Vedas.

1. The Rig Veda
2. The Sama Veda
3. The Yajur Veda
4. The Atharva Veda

3 State what the hymns in each Veda deal with

1. The Rig Veda. - The hymns are dedicated by the sages to gods.

2. The Sama Veda :- These hymns were meant to be sung at the time of the sacrifice by the priests.

3. The Yajur Veda :- It deals with hymns recited during the performance of Yajnas.

4. The Atharva Veda :- The hymns contained in this Veda deal with magic and charms. Besides the powers of ghosts and spirits, the hymns deal with gyan, karma and upasana. Some hymns also deal with medicines for the treatment of various diseases.

4. What are the Upanishads? Name any two Upanishads.

They are philosophical commentaries on the Vedas.

The doctrines such as Karma, Moksha and Maya are explained in detail.

The Briharanyaka Upanishad and Chandogya Upanishad are the two earliest Upanishads.

5. What are the Dharmashastras?

The law-books called the Dharmasutras and the Smritis together with commentaries, are called Dharmashastras. They lay down the duties for different classes of people as well as for kings and their officials.

6. Name the epics written during the later Vedic period.

The Ramayana and the Mahabharata are the ^{two} epics written during the later ¹ Vedic period.

7. What is known as Bhagwad Gita?

During the Mahabharata war, Lord Krishna gave Arjuna a discourse and prevailed upon him to do his duty. This discourse at the battlefield is compiled in the form of Bhagwad Gita. It forms a part of the Mahabharata.

8. Mention the importance of the Epics as a source of information about the Aryans.

[learn the first four points given under the topic The importance of the Epics]

9. Which battle is known as the Mahabharata? For how long was this battle fought?

The battle fought between the Pandavas and Kauravas is known as Mahabharata. It was fought for 18 days.

10. State the role of iron in the development of agriculture during the Vedic Age.

Discovery of iron gave the Aryans new implements like axes to clear the forest and cultivate the land. Thus, agriculture became their important occupation. With the use of iron plough-heads, sickles and hoes, they could bring vast

tracts of land under cultivation.

11. Give two features of Painted Grey Ware [PGW] Pottery.

The PGW is a very fine, smooth and even-coloured pottery. It was made out of well-worked, high quality clay with geometric patterns painted on it in black. Floral patterns and Sun symbols are seen in some cases.

12. Name the four Varnas that existed during the Vedic age.

Brahmins, Kshatriyas, Vaishyas and Shudras.

13. How did trade become a pivot around which the life of the people revolved?

During the Later Vedic phase agricultural surplus led to trade, giving rise to markets from which developed towns and cities. Thus, trade became the pivot around which the whole town and city life moved.

14. State the difference in the position of women between the Early Vedic and Later Vedic Age.

During the Early Vedic age women were respected. The daughters were given freedom to choose their husbands. The system of ~~the~~ remarriage of widows was prevalent.

In the Later Vedic Period, there was significant decline in the status of women. Their participation in Yajnas was not considered necessary. They did not enjoy the right to property. The freedom to choose husbands by women was curtailed.

15 Name the four ashramas into which the human life span was divided, indicating the time span for each.

1) The Brahmacharya Ashrama :- It lasted upto the age of 25 years.

2) The Grihastha Ashrama :- This period lasted from the age of 25 to 50 years.

3) ~~4~~ The Vanaprastha Ashrama :-

Chapter - 1

The Harappan Civilisation

1. Name two important sources of information on the Harappan civilisation.

1. The great bath
- 2) Seals
- 3) The citadel
- 4) Dockyard
- 5) Bearded man
- 6) Dancing girl.

2. Give any two characteristic features of the citadel.

The citadel owed its height to the buildings constructed on mud brick platforms. The citadel had the houses of the ruling class and important buildings like the great Bath, the granary, the assembly hall and the workshops.

3. How are seals used? What information do they give about Harappan trade?

The seals were used by traders to stamp their goods. After a bag with goods was tied, a layer of wet clay was applied on the knot, and the seal was pressed on it. Because of trade these seals were found in different

regions. They indicate that the Harappan trade had spread over a vast area.

4. Briefly describe granaries at Harappa.

At Harappa there were two rows of six granaries each. To the south of the granaries at Harappa working floors consisting of rows of circular brick platforms were discovered. It is believed that these floors were meant for threshing grain. It was built on a raised platform to protect it from floods. The granary had ventilation to prevent grains from becoming mildewed.

5. Briefly describe the ornaments worn by the Harappans.

Some of the common ornaments were necklaces, finger-rings, bangles, armlets, anklets, nose rings, fan-shaped head-dress and earrings. They were made of gold, silver, precious stones and ivory.

6. Briefly describe the statue of the dancing girl.

The bronze statue of dancing girl was found at Mohenjo-daro. It is a masterpiece of art and it shows a high degree of development in the art of sculpture. The figurine shows vigour, variety and ingenuity. The right arm of the dancing girl rests on the hip and the left arm is heavily bangled. It holds a small bowl against her left leg.

7. State two features of the internal trade in the Indus Valley Civilisation.

The Harappans carried on considerable trade in stone, metal, shell, etc, within the Indus civilisation zone. They did not use metal money but carried on all exchanges through barter.

8. State any two evidences that show the Harappans also had trade relations with other countries.

The Mesopotamian texts refer to two intermediate trading stations called Dilmun and Makan, which lay between Mesopotamia and Meluhha (which was the ancient name given to the Indus region).

The depiction of ships and boats on seals also indicate the Harappans trade relation with other countries.

The Harappan seals discovered in Mesopotamia also prove that the Harappans had trade with Mesopotamians.

9. Name the four animals depicted on the Pashupati seal.

Elephant, tiger, buffalo, rhinoceros, deer

10. State any two causes that led to the decline of the Harappan civilisation

- Explain
- 1) floods and Earthquakes
 - 2) Increased Aridity
 - 3) Deforestation
 - 4) ~~The invasion~~ Attack [the invasion of Aryans].

11. What types of weights and measures did the Indus people use?

The Indus people used a number of stone weights. They used sets of cubical stone weights. The basic was 16. The larger weights were multiples of 16 like 32, 48, 64, 128 and so on. The smallest ones were all fractions of 16.

12. In what two respects is Harappan Civilisation our greatest heritage?

The Harappan way of making baked pottery, bricks, beads, jewellery, textiles, etc. was adopted by later civilisations. In the religious sphere, the worship of Pashupati Shiva, the female deity as Mother Goddess, sacred trees, animals, serpents, religious symbols, etc., which were prevalent during the Harappan period were adopted in later Hinduism and some of them have continued to this day.

13. Explain the main characteristics of town planning.

[learn any four points given under Features of Urban Planning]

14. State the importance of the Great Bath.

[learn ~~any~~^{all} four points given under the topic the Great Bath]

Homework for class IX

English grammar

I. **Total English**

Chapters 1, 2 and 3 page no 7-64

- a. Do the exercises in your grammar notebook.
- b. Write essays and letters in your notebook
- c. Write the answers of the comprehension passages in the textbook.

II. **Comprehensive grammar of current English [Revise and Learn]**

- a. Chapters 14, 16, 17, 26, and 44
- b. Go through Chapter 40 and learn the rules of transformation of sentences

Holidays Homework

Class- IX

Subject- English literature

- The merchant of Venice
- Learn word meanings of Act -1 scenes 1&2(given at the right side of the text book)
- Treasure Trove (poems)
- Learn the summary and word meanings of the poems-The heart of the tree; The cold within.
- Stories- Read the stories -Old man at the bridge; A face in the dark.. and learn the word meanings.

Exercises

Short-Answer Questions

1. What are the three states of matter? *Solid, Liquid, Gas*
2. Arrange solids, liquids and gases in order of increasing intermolecular space. *Gas > Liquid > Solid*
3. Arrange solids, liquids and gases in order of increasing intermolecular force. *Solid > Liquid > Gas*
4. What will happen to the kinetic energy of a particle if it is heated? *K.E increases*
5. What gives rise to the pressure of a gas? *The collision of the particles with the walls of the vessel give rise to the pressure of the gas*
6. In which state of matter do the particles move the longest distances? *gaseous*

Chapter-1 Matter

Long Answer Questions

1 Explain the melting of a solid on the basis of kinetic energy.

Ans The particles constituting a solid ~~only~~ vibrate about their mean positions. As a solid is heated, the KE of the particles ~~more~~ increases with rising temperature, the particles vibrate more and more vigorously till they move away from their fixed positions. At a particular temperature, ~~called~~ called the melting point of the solids. Thus, a solid becomes liquid.

2 Explain the evaporation of a liquid on the basis of kinetic theory.

Ans As the temperature is raised, the KE of the particles ~~increases~~ increases and the particles collide ~~more~~ more strongly. This leads to faster evaporation of the liquid. At the boiling point of the liquid, the KE of the particles becomes so great that all the particles tend to escape. Thus, at the boiling point of the liquid, the

entire liquid may turn into vapour.

3 Explain the liquefaction of gas on the basis of kinetic theory.

Ans In the gaseous state, the particles move very fast, independently of each other. As the temperature is lowered, the KE of the particles is also lowered. When low-energy gaseous particles collide with each other, they may form bigger lumps or clusters and these gases may condense into a liquid.

4 Explain the freezing of liquid on the basis of kinetic theory.

Ans As a liquid is cooled, the KE of the particles decreases. The particles move shorter and shorter distances as the temperature is lowered. At the freezing point, the translatory motion of the particles ceases and the particles get rigidly fixed. This is how a liquid changes into solid. However the particles in solid continue to vibrate about their mean position.

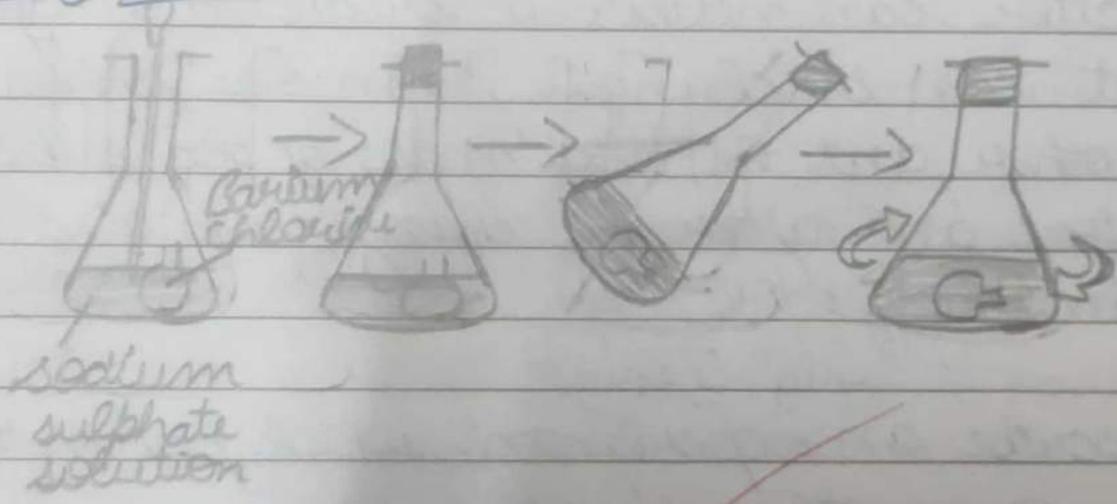
5 State the law of conservation of mass.

Ans Matter can neither be created nor destroyed but can be changed from one form to another and the total mass of the substance before and after the change remains the same. Eg $C + O_2 \rightarrow CO_2$
 $12 + 32 = 12 + 32$
 $44g = 44g$

6 Describe an experiment which proves the law of conservation of mass.

Ans Put a small tube or bottle containing a solution of barium chloride into a conical flask. Place some sodium sulphate solution in the flask with the help of dropper carefully ensuring that two substances do not come in contact with each other. Close the mouth of the flask with a cork and weigh the flask. Tilt the flask and swirl it slowly. A white precipitate is formed. Leave the flask for some time and weigh again. You will find that there is no change in the weight of the flask.

Diagram:-



~~Scam~~
~~19/3~~

... which proves the law of conservation of mass.

Objective Questions

Choose the correct option.

- Which of the following statements is correct?
 - Intermolecular space is the largest in the solid state.
 - Intermolecular force is the strongest in the solid state.
 - Intermolecular force is the strongest in the liquid state.
 - Intermolecular force is the strongest in the gaseous state.
- Which of the following statements is false?
 - The kinetic energy of particles decreases with increasing temperature.
 - The law of conservation of mass is obeyed by chemical reactions.
 - Matter can be changed from one form to another.
 - Matter cannot be created.

Fill in the blanks.

- The intermolecular space in a substance with increasing intermolecular force. (increases/decreases)
- Evaporation of a liquid is faster at temperatures. (higher/lower)
- A gas is compressed easily because of its intermolecular space. (large/small)
- Among ice, water and water vapour, the intermolecular force is the in water vapour. (weakest/strongest)
- The kinetic energy of a particle on cooling. (decreases/increases)

Write 'T' for true and 'F' for false for the following statements.

- A liquid does not evaporate below its boiling point. *False*
- The collision among the particles in a liquid causes it to evaporate. *True*
- When a substance is heated, the kinetic energy of the particles decreases. *False*
- When a solid is heated, its particles vibrate more vigorously. *True*
- There is practically no decrease in the total mass of the substances in a chemical reaction. *True*
- Burning ~~does not~~ obey the law of conservation of mass. *False*



Chapter-4 The structure of Atom

Short-Answer Questions

1 What name was given by Kanada to the tiny particles that matter is made-up of?

Ans Paramanu

2 Answer the following on the basis of Dalton's atomic theory.

a Are atoms divisible?

Ans No, atoms are indivisible

b Do atoms of the same elements have the same weight?

Ans Yes atoms of the same elements have the same weight

c Do atoms of different elements have the same weight?

Ans No, atoms of different elements have

the different weight

d. What are the particles that take part in a chemical reaction?

Ans Atoms

3 e. Name the particles that constitute cathode rays.

Ans Electron

4. Give the word equation that led to the discovery of neutrons

Ans Beryllium + α -particle \rightarrow carbon + neutron

5

5. What are anode rays made of?

Ans Protons

6. What are the relative masses and charges of electron, proton and neutron

Particle	Charge	Mass
Electron	-1 unit	$\frac{1}{1840}$ of an H-atom
Proton	+1 unit	1u
Neutron	Zero	1u

7 Who discovered the nucleus

Ans Ernest Rutherford

8 Which fundamental particles constitute the nucleus of an atom

Ans Proton and Neutron

10 The nucleus of an atom of which element does not contain neutron?

Ans Hydrogen

11 Where are electrons placed in the atoms? Are they stationary?

Ans Electrons revolve around the nucleus in certain permissible ~~or~~ circular orbits, called shells.

No, they are not stationary

12 What particles will be formed if an electron is transferred from a sodium atom to that of chlorine.

Ans There is formation of ion that is sodium cation and chlorine anion

12 Give the nuclide symbol of sodium ($Z=11$, $A=23$) and phosphorus ($Z=15$, $A=31$)

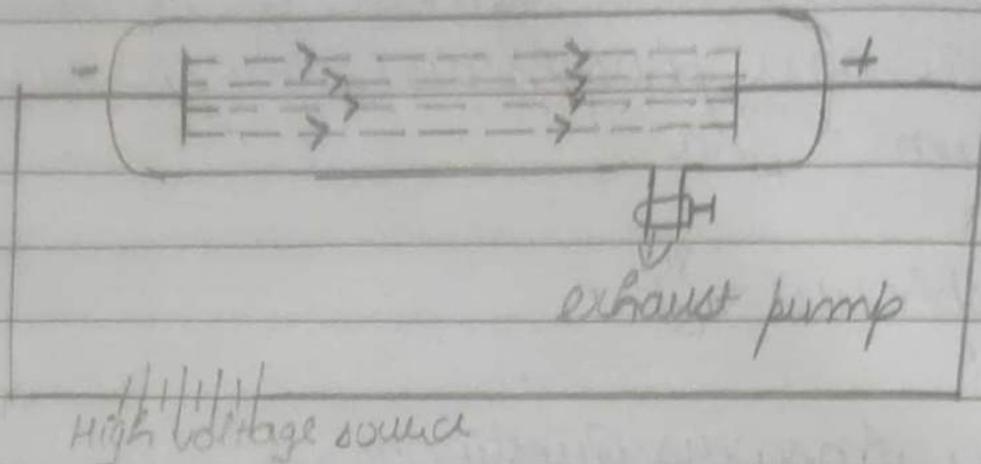
Ans Sodium = ${}_{11}^{23}\text{Na}$

Phosphorus = ${}_{15}^{31}\text{P}$

Long Answers Questions

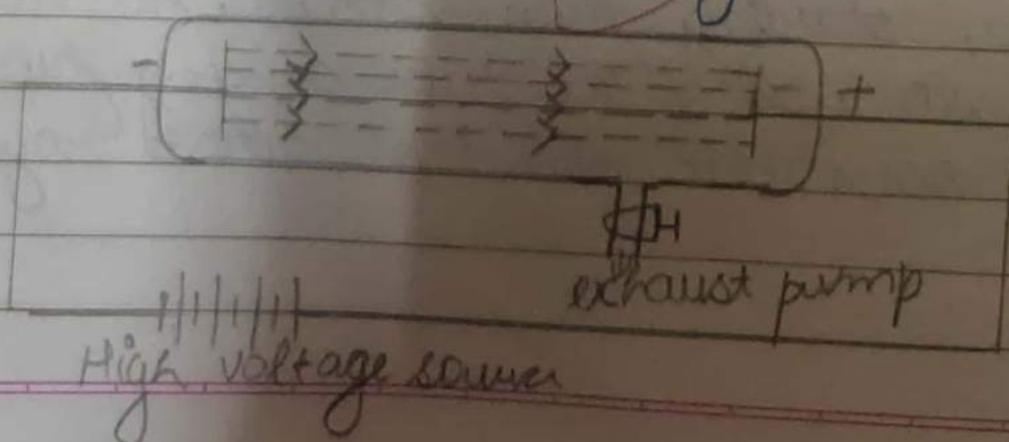
1 Describe the cathode ray experiment of J.J. Thomson that led him to conclude that cathode rays are made up of negatively charged particles.

Ans When a high voltage is applied across the terminals, and the pressure inside the tube is $0.01 - 0.001$ mm of mercury, the ends of the tube opposite the cathode rays start glowing. This phenomenon is called fluorescence. Investigations have shown that some invisible rays, starting from cathode, fall on the opposite wall of the tube causing fluorescence. These rays were named as cathode rays.



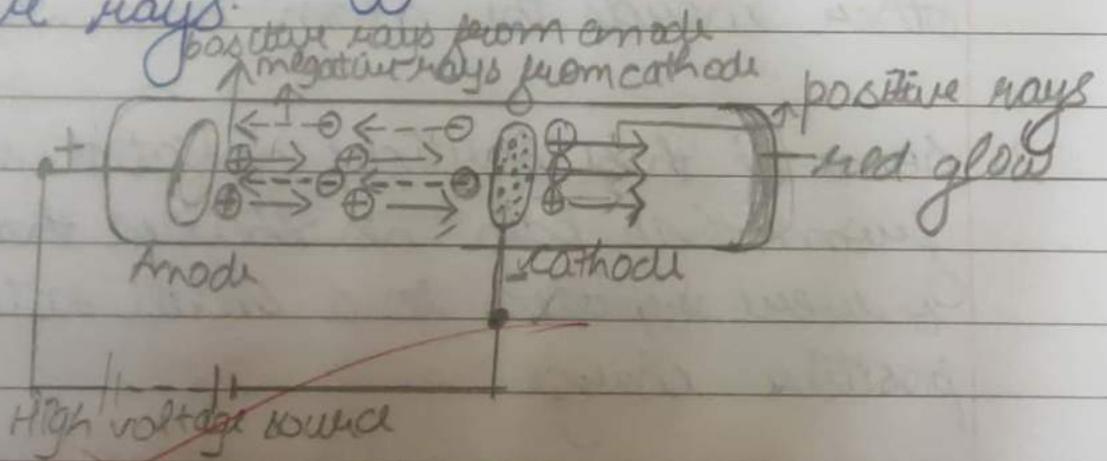
2 Explain how cathode rays and anode rays are produced in discharge tube.

Ans ~~Cathode rays~~ When a high voltage is applied across the terminals and the pressure inside the tube is $0.01 - 0.0001$ mm of mercury, the end of the tube opposite the cathode starts glowing. This phenomenon is called fluorescence. Investigations have shown that some invisible rays, starting from the cathode, fall on the opposite wall of the tube causing fluorescence. These rays were named as cathode rays.



Anode Rays

Goldstein repeated the cathode-ray experiment using a perforated cathode. He observed that there was a red glow on the wall opposite the anode. So some rays must have travelled in the direction opposite to that of the cathode rays, i.e. from the anode towards the cathode. These rays were called anode rays or canal rays (as they moved through the perforations, or canals, in the cathode). It was found that these rays contained positively charged particles, and so J.J. Thomson called them positive rays.



- 3 What observations did Rutherford make in his α -particle scattering experiment? How did he interpret them to arrive at the nuclear model of the atom?

Ans Rutherford bombarded a thin gold foil with α -particles. Alpha particles are emitted by radioactive substances like radium and polonium.

His observations and conclusions are described below

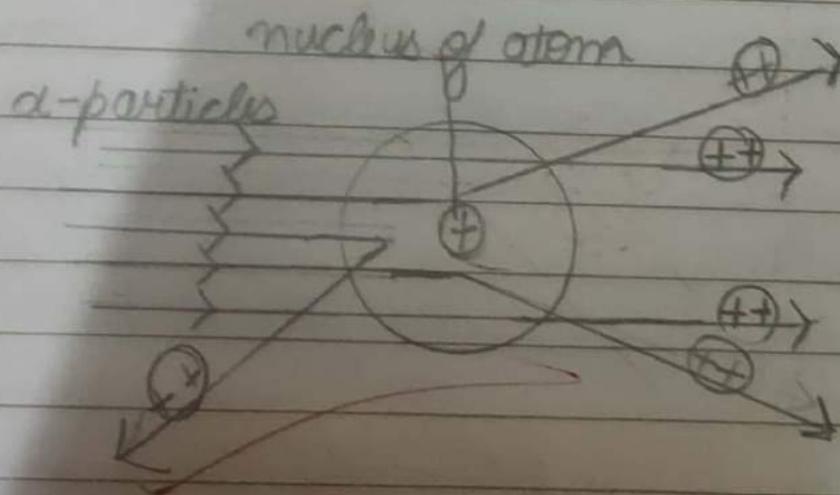
1. Most of the α -particle went straight through the foil. This is explained by the fact that they were not attracted to or repelled by any particle. In other words the atom is mostly empty.
2. Some of these particles deviated slightly from their path. This showed that they were repelled to a small extent by a positive charge.
3. Very few of the particles, the ones at the ~~center~~ centre, almost retraced their path. This meant that they were strongly repelled by a small positively charged body at the

centre of the atom. This positively charged body is called the nucleus.

Since the atom has negligible mass the mass of the atom is concentrated in the nucleus.

4. Rutherford also theorised that electrons revolve round the nucleus at large distances from it.

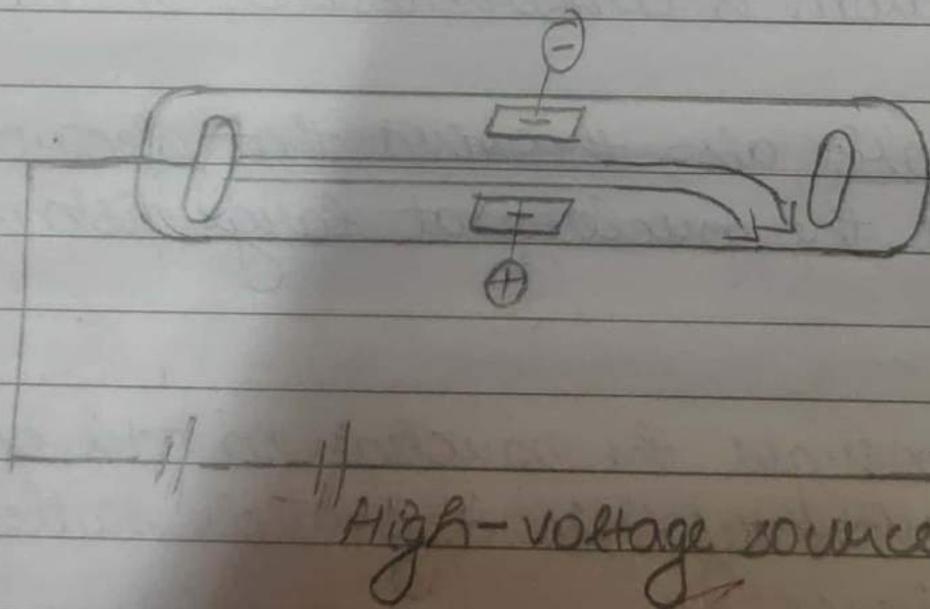
Thus emerged the nuclear model of the atom from Rutherford's α -particle scattering experiment.



Q1

2★ The ~~part~~ particles constituting cathode rays are negatively charged.

This is proved by the fact that this cathode rays bend towards the positive plate in an electric field.



Objective Questions

Choose the correct option.

- Which of the following symbols is not derived from the Latin name of the element?
(a) Fe (b) Cu (c) Cr (d) Pb
- Which of the following symbols is derived from the Latin name of the element?
(a) He (b) Ne (c) Mg (d) Ag
- Which element among the ones appearing below is pentavalent?
(a) CaO (b) NH₃ (c) MgSO₄ (d) PCl₅
- What is the valency of Mg in Mg₃N₂?
(a) 1 (b) 2 (c) 3 (d) 4
- What is the value of x in the following equation?
$$\text{CaCO}_3(\text{s}) + x\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$$

(a) 1 (b) 2 (c) 3 (d) 4
- Which of the following is not a balanced chemical equation?
(a) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ (b) $2\text{KClO}_3 \rightarrow \text{KCl} + 3\text{O}_2$
(c) $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3$ (d) $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$

Fill in the blanks.

- Nitrogen is ^{trivalent} in AlN. (monovalent/trivalent)
- One sulphate radical will take up ^{two} sodium radical(s) to form sodium sulphate. (one/two)
- $\text{H}_2\text{O}_2 \xrightarrow[\text{catalyst}]{\text{MnO}_2} \text{H}_2\text{O} + \text{O}_2$
- $\text{Na}_2\text{CO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$
- $\text{NaHCO}_3 \xrightarrow{\text{heat}} \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$

Write 'T' for true and 'F' for false for the following statements.

- Ozone is a triatomic gas. T
- The atomicity of sulphur is 4. F
- One dipositive radical will require only one dinegative radical to form a compound. T
- A ^{sodium} noble-gas element is monoatomic as well as monovalent. F
- A substance in solution is indicated in a chemical equation by the symbol (aq). F



CLASS - 9th

MATHEMATICS

1. Write and learn the formulas of all the Chapters (full book) in your notebook.
2. Solve exercises of following chapters in your notebook:-
 - CH-4 Expansions
 - * CH-9 Triangles
 - * CH-15 Construction of Polygons.

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Home Work

Class: IX

Sub: Physical Education

Game Part

Football

Learn ~~the~~ every thing from books and
also learn the diagrams.

Bio-Part

Lesson - 2, 3 Muscular System and Respiratory
system.

Homework (class-IX)

Sub-Physics

1. CHAPTER-1 (Measurements and experimentation)

Write on notebook

- (i) Derived units of some physical quantities (table)
- (ii) Solve exercise1(A)

2. CHAPTER-10 (Magnetism)

Read this chapter and solve exercise 10(A) and 10(B)

3. Lab Manual

(Write following experiment)

1. (Exp-1) To determine the least count of the vernier callipers and measure the length and diameter of a small cylinder, may be a metal rod of length 2 to 3cm and diameter 1 to 2cm.
2. (Exp-2) To determine the pitch and least count of the given screw gauge and measure the mean radius of the given wire.
3. (Exp-5) To calculate the time period (T) and their squares (T^2) for each length (l) for 20 oscillations of a simple pendulum of lengths about 70, 80, 90,100 and 110cm each. Plot a graph of l VS T ,also obtain its slope and calculate the value of g in the laboratory by the method $g=4\pi^2 \times l/\text{slope}$
4. (Exp-7.1) To verify the laws of reflection of light by using a plane mirror.
5. (Exp-8.2) To find the value of R in case of concave mirror and to find the focal length of the concave mirror by the one needle method.
6. (Exp-9) To find the resultant resistance of two small bulbs used in torches (resistors) connected in (i) series and (ii) parallel and to observe the glow of bulbs connected in each case.
7. (Exp-10) To plot the magnetic lines of force of a bar magnet and to locate the neutral points.

Follow the instructions given below

PLANE SIDE	LINE SIDE
1.Aim	1.Aim
2.Apparatus	2.Apparatus
3.Diagram	3.Procedure
4.Observation/observation table	4.Result
5.Calculation(If given)	5.Precaution
6.Result	

9th Punjabi Homework

- 1.) ਅਗੇਤਰ - ਪਿਛੇਤਰ ਲਿਖਣੇ ਅਤੇ ਯਾਦ ਕਰਨੇ ਹਨ। Page no. 78, 79, 80.
- 2.) ਵਿਰੋਧੀ ਸ਼ਬਦ ਲਿਖਣੇ ਅਤੇ ਯਾਦ ਕਰਨੇ ਹਨ। Page no. 111, 112, 113, 114.
- 3.) ਮੁਹਾਵਰੇ 1-100 ਤੱਕ ਲਿਖਣੇ ਅਤੇ ਯਾਦ ਕਰਨੇ ਹਨ। Page no. 131, 132, 133, 134.
- 4.) ਪਹੁਤਾ ਪਾਂਧੀ ਅਤੇ ਭੱਤਾ ਕਹਾਣੀਆਂ ਪੜ੍ਹ ਕੇ ਆਉਣੀਆਂ ਹਨ।

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