

Chapter 1: The Ever- Evolving World of Science

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. c 2. d

B. Fill in the blanks:

1. Fruits, vegetables 2. Water cycle
3. Metals 4. Christian Huygens

C. Write 'T' for True and 'F' for false:

1. F 2. T 3. T 4. T

D. Answer the following questions:

1. We need food to stay alive and to get energy to do work.
2. All machines and appliances that need electricity to run, allow electric current to pass through them. Home appliances such as electric iron, television, refrigerator, electric bulb, air conditioners, all run on electricity and thus allow electric current to pass through them. Computers also need electricity to run. Electric current has electrical energy.
3. Sundial Clocks were made which helped in knowing time by the shadows it formed due to the movement of the sun.
4. A simple pendulum is a theoretical system comprising a point mass (bob) suspended by a massless, inextensible string from a rigid support, which swings back and forth in a periodic, oscillatory motion under the influence of gravity.

Chapter 2: Exploring Substances: Acidic, Basic and Neutral

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (b)
2. (d)
3. (b)
4. (d)
5. (d)

B. Fill in the blanks:

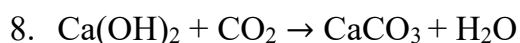
1. bases
2. Organic acids
3. Sour in taste
4. caustic soda
5. Milk of magnesia
6. Blue vitriol

C. Write two uses of each:

1. a. HCl is used in laboratories for various experiments.
b. It is used in the manufacture of glue.
2. a. As seasoning for food
b. in manufacture of chlorine and sodium
3. a. It is used to make fertilizers.
b. It is used to clean jewellery made of gold and silver.
4. a. It is used for white washing
b. in the manufacture of bleaching powder
5. a. It is used in the manufacture of fertilizers, nylons, plastics, dyes,
b. Used as ink remover to remove ink spots from clothes.
6. It is used in manufacture of soap, paper, rayon, textiles, medicine etc.
7. In bakery and medicine
8. In manufacture of fertilizers, pesticides, glass, fireworks, explosives, and rocket fuels.
9. It is used as a fungicide, algacide, root killer, and herbicide in both agriculture and non-agricultural settings.
10. In purification of water

D. Complete the following Chemical reactions:

1. $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3$
2. $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$
3. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
4. $\text{Na}_2\text{O} + 2\text{HNO}_3 \rightarrow 2\text{NaNO}_3 + \text{H}_2\text{O}$
5. $\text{Al}(\text{OH})_3 + 3\text{HNO}_3 \rightarrow \text{Al}(\text{NO}_3)_3 + 3\text{H}_2\text{O}$
6. $2\text{NaCl} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{HCl}$



E. Answer the following questions in one word:

1. Sour taste
2. Lactic acid
3. Citric acid
4. Nitric acid
5. Carbon di oxide
6. Methyl orange turns red in acidic solutions and yellow in basic solutions.
7. Carbon di oxide
8. Nitric acid
9. Caustic soda
10. Potassium aluminum sulphate

F. Answer the following questions:

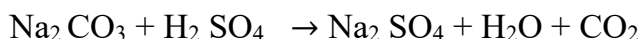
1. Acids can be prepared from non-metals by a two-stage process. Carbon, phosphorus, sulphur and nitrogen are some non-metals. They are not hard and shiny like metals. They react with oxygen to form non-metallic oxides. These are acidic in nature. When they are dissolved in water, they form acids.

Physical properties

- Acids are sour in taste.
 - Acids are corrosive in nature. They can corrode substances they come in contact with. Strong acids like hydrochloric acid and Sulphuric acid can even burn human skin, clothes and paper.
2. The acids present in fruits and in some food items have weak acids. These acids are also called organic or weak acids. Some acids can be obtained from minerals. That is why, such acids are called strong acids such as Sulphuric acid (H_2SO_4), hydrochloric acid (HCl).

3. The acids present in fruits and in some food items have weak acids. These acids are also called organic acids. Some acids can be obtained from minerals, called strong acids.

4. Acids react with carbonates to form salt, water and carbon dioxide.



5. Uses of acids are

- HCl is used to remove stains and deposits or scales from inside the boilers. This is called descaling.
- HCl is used to make aqua regia. Aqua regia is three parts of hydrochloric acid and one part of water. It is used to dissolve metals like gold.
- HCl is also used for cleaning tiles, wash basin and toilet, etc.
- H_2SO_4 is used to make paints, dyes and fertilizers.
- H_2SO_4 is used in car batteries.
- HNO_3 is used to manufacture explosives like TNT.

6. Uses of bases

- Sodium hydroxide (NaOH) is commonly known as caustic soda. It is used in manufacture of soap, paper, rayon, textiles, medicine etc.
 - Calcium hydroxide (Ca(OH)_2) is commonly known as slaked lime. It is used for white washing, in the manufacture of bleaching powder, for neutralizing acidity of soil, for removing hair from the animal skins in leather industry etc.
 - Ammonium hydroxide is used in the manufacture of fertilizers, nylons, plastics, dyes, as an ink remover to remove ink spots from clothes.
 - Sodium carbonate is used as washing soda and sodium hydrogen carbonate as baking soda. Magnesium hydroxide is used as an antacid to neutralize acidity in the stomach.
7. When an acid reacts with a base, they neutralize each other and salt and water are formed. This is called neutralization reaction. When

hydrochloric acid reacts with sodium hydroxide (caustic soda), sodium chloride (common salt) and water are produced. A salt is neutral, it is neither acidic nor basic.

8. Soaps which we use for cleaning, are actually sodium salts of some acids. Soap can be prepared by boiling vegetable oil or animal fat with caustic soda (NaOH).

Oil + sodium hydroxide on heating → Soap + glycerine

To separate the soap from the mixture, add a teaspoonful of salt to the container and stir. On cooling, solid soap separates out as a crust on top of the solution.

Assertion-Reason Based Questions

1. (a) Both A and R are true and R is the correct explanation of the Assertion.
2. (b) Both A and R are true but R is not the correct explanation of the Assertion.

Chapter 3: Electricity: Circuits and their Components

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (b)
2. (c)
3. (b)
4. (a)
5. (c)

B. Fill in the blanks:

1. battery
2. Millimeter
3. Metals
4. tungsten

C. Write 'T' for True and 'F' for False:

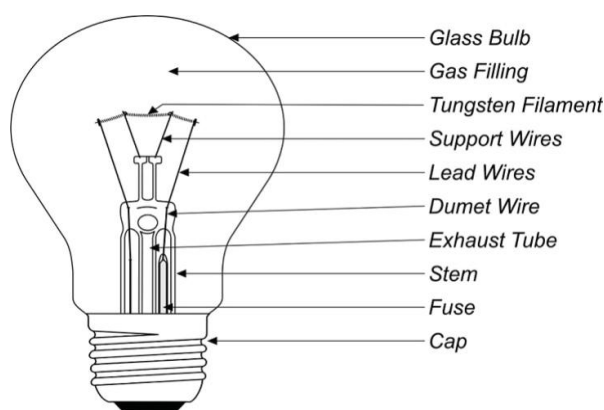
1. T
2. T
3. F
4. T

D. Answer the following questions:

1. An electric circuit is a continuous path for electric current consisting of circuit elements such as bulb, wire, battery or cell etc.

2. Resistor is used to resistance the flow of electric current.
3. Materials that allow electricity to flow through them easily are called good conductors of electricity like copper, aluminium, silver etc. All metals are good conductors.
4. Materials that prevent the bulb from glowing by not allowing electricity to pass through them are called poor conductors of electricity like wood, rubber, plastic etc.
5. An incandescent lamp works by passing an electric current through a thin filament, typically made of tungsten, causing it to heat up to a high temperature and emit light. This process is called incandescence, where heat is converted into visible light. The filament is enclosed in a glass bulb, which may be filled with an inert gas to slow down the evaporation of the filament.

The filament is attached to two thicker wires that support it, as shown in figure. One thick wire connects to the metal case at the lamp's base, while the other connects to the metal tip at the centre of the base. These form the two terminals of the lamp, and are fixed in a way that they do not touch each other. In such incandescent lamps, the filament gets hot and glows to produce light.



Assertion-Reason Based Questions

1. (b) Both A and R are true but R is not the correct explanation of the Assertion.
2. (a) Both A and R are true and R is the correct explanation of the Assertion.

Chapter 4: The World of Metals and Non- Metals

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

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

B. Fill in the blanks:

- | | | | |
|---------------|-----------------------|-----------------|----------------------|
| 1. Gold | 2. Reactive | 3. Good | 4. Non- metals |
| 5. more | 6. Hydrogen | 7. Gold, silver | 8. Sodium, potassium |
| 9. non-metals | 10. Hydrogen sulphide | | |

C. Match the columns:

- | | | | | |
|--------|--------|--------|--------|--------|
| 1. – d | 2. – c | 3. – f | 4. – a | 5. – b |
| 6. – e | 7. – h | 8. – g | | |

D. Answer the following questions:

1. Five physical properties of metals are
 - i. Almost all metals exist as solid in room temperature but mercury, gallium, caesium and francium are only the metals which are in liquid state.
 - ii. Most metals can be beaten into thin sheets or foils.
 - iii. Glitter or a shiny surface is a property of metals.
 - iv. Metals are good conductor of heat and electricity.
 - v. Metals produce a ringing sound when struck hard. So, metals are sonorous.
2. The property of metals that enables them to produce a ringing sound is called sonority, and metals are said to be sonorous in nature.
3. Sodium and potassium are two soft metals.
4. Five physical properties of non- metals are
 - i. Non– metals are generally in solid state or in gaseous state.

- ii. Non-metals are generally soft except diamond.
 - iii. Non-metals are brittle in nature, they break into pieces when struck with hard material.
 - iv. Non-metals are poor conductor of heat and electricity.
 - v. Non metals do not produce any sound on beating so they are not sonorous.
5. Zinc is more reactive than Copper so it displaces copper from copper sulphate and forms Zinc sulphate.
- $$\text{Zinc} + \text{Copper Sulphate} \rightarrow \text{Zinc Sulphate} + \text{Copper}$$
6. Metals are used to make cooking utensils, water boilers etc. because they are good conductor of heat.
7. Gold and silver are the most malleable metals known. This is what helps jewellery designers to create bangles, chains, and other decorative items of gold and silver.
8. Rusting is defined as the process of slow eating of metal due to the attack of air and water on its surface.
- Rusting of iron is an undesirable reaction because the layer of rust formed falls off exposing the fresh metal to further rusting. Thus, iron objects become weak with the passage of time. Copper vessel gets coated with a green substance called basic copper carbonate with the passage of time. It is formed due to the reaction of copper with carbon dioxide and water presents the atmosphere. Silver becomes black and lose their shine with the passage of time. This is because of silver reacts with hydrogen sulphide gas present in the air.
9. Two chemical properties of non- metals are
- i. Non - metals do not react with water though they may be very reactive in air.
 - ii. Generally non-metals do not react with acids.
10. Six uses of metals and non- metals are

- i. Metals are very useful in automobile industries. Metals are used in making machinery, aeroplanes, buses, cars, trains etc.
- ii. Metals are used to make cooking utensils, water boilers etc.
- iii. Metals are used to make tools.
- iv. Metals are used to make ornaments.
- v. Metals are used to make sheets, wires etc.
- vi. Non- Metals are used in fertilizers to enhance the growth of plants.

Chapter 5: Changes Around Us

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

- | | | | |
|---------------|--------|--------|--------|
| 1. (b), white | 2. (b) | 3. (c) | 4. (b) |
| 5. (b) | | | |

B. Fill in the blanks:

- | | | | |
|-------------|-------------|-------------|--------|
| 1. Chemical | 2. Physical | 3. Chemical | 4. new |
|-------------|-------------|-------------|--------|

C. Write 'T' for True and 'F' for false:

- | | | | |
|------|------|------|------|
| 1. T | 2. F | 3. F | 4. T |
| 5. T | | | |

D. Classify the changes involved in the following processes as physical or chemical changes:

1. Chemical change
2. Chemical change
3. Physical change
4. Chemical change
5. Physical change
6. Chemical change
7. Physical change

8. Physical change
9. Physical change
10. Physical change

E. Answer the following questions:

1. A change in which a substance under goes a change in its physical properties (shape, size, colour and state) is called a physical change.

Examples of physical changes

- i. Evaporation or condensation of water
 - ii. Melting of a solid on heating and freezing of a liquid on cooling.
2. Burning wood is a **chemical change** because new substances like ash, carbon dioxide, heat, and water vapor are formed, making the change irreversible. Cutting wood is a **physical change** because only its size and shape are altered; its original chemical composition remains the same, and no new substances are produced.
 3. Two methods to prevent iron from rusting are applying a physical barrier like **paint or grease** to block air and moisture, and **galvanization**.
 4. Rusting is a chemical reaction that requires both oxygen and moisture to occur. Coastal areas have higher humidity and a greater presence of moisture from the nearby sea, which accelerates the rusting process compared to deserts, where the air is very dry and contains little moisture, slowing down the rate of rusting.

F. Brain Booster

3 and 4

Assertion-Reason Based Questions

1. (c) A is true but R is false.
2. (c) A is true but R is false.

Case Study

1. B
2. A
3. A change where no new substances are formed is called physical change.
4. A change in which an entirely new substance is formed with different properties, is called chemical change.
5. Explosion of fire crackers produces sound and harmful gases that pollute.

Chapter 6: Adolescence: A Stage of Growth and Change

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (c)
2. (c)
3. (d)
4. (b)

B. Fill in the blanks:

1. Menopause
2. risk-taking
3. Deodorants
4. HIV
5. menstrual cycle

C. Write 'T' for True and 'F' for false:

1. T
2. F
3. F
4. T

D. Short answer type questions:

1. Personal hygiene during adolescence is crucial for maintaining health, preventing infections, and building confidence as teenagers transition into adulthood. Hormonal changes during puberty can lead to increased sweating, body odor, and acne, making good hygiene practices even more important.
2. Adolescence is a period of rapid growth and development, requiring a balanced and nutrient-rich diet to support physical and cognitive changes. They need sufficient calories, protein, carbohydrates, healthy fats, vitamins, and minerals, with special attention to iron and calcium.

3. Adolescence is a period of significant emotional and behavioral changes, driven by hormonal shifts, brain development, and social pressures. These changes can manifest as mood swings, increased self-consciousness, heightened sensitivity, and a growing desire for independence. Adolescents may also exhibit impulsive behavior, risk-taking tendencies, and increased sensitivity to social situations.
4. Making adolescence a joyful experience involves fostering positive emotions, encouraging healthy habits, and promoting strong social connections. This can be achieved through activities that spark joy, like hobbies and spending time with friends, as well as building confidence and self-esteem. Supporting adolescents with open communication, understanding, and acceptance from family and peers is also crucial.

E. Long answer type questions:

1. Some of the secondary sex characteristics that develop in boys during puberty are as follows:
 - Voice becomes deeper.
 - Facial hair (beard and moustache) develops.
 - Hair develop under the armpits, under chest, and in the pubic region.
 - Muscles develop and shoulders become broad.

Some of the secondary sex characteristics that develop in girls during puberty are as follows:

- Breasts develop and increase in size.
 - Hair develop under armpits and in the pubic region.
 - Hips broaden and the pelvic region widens.
 - The menstrual cycle begins.
2. The beginning of the menstrual cycle marks the onset of puberty in human females. The menstrual cycle starts with the shedding off of the endometrial lining of the uterus that causes bleeding.

The thickening of the endometrium is due to the periodic preparation for pregnancy. Menstruation takes place when the mature ovum released by the ovary is not fertilised during ovulation.

3. AIDS is caused by HIV virus. AIDS is a dangerous disease that weakens the immune system of patient. Hence, it is important to maintain sexual hygiene to keep oneself safe from such diseases and to avoid sexual relationship with several partners, to prevent the spread of these diseases.
4. Physical activity is crucial for the healthy growth and development of adolescents, offering benefits for both physical and mental well-being. It promotes bone health, strengthens muscles, improves cardiovascular fitness, and helps maintain a healthy weight. Additionally, it enhances cognitive function, reduces stress and anxiety, and improves mood and self-esteem.

Assertion – Reason Based Questions

1. A
2. B

Case Study

1. A
2. B
3. Some of the secondary sex characteristics that develop in girls during puberty are as follows:
 - Breasts develop and increase in size.
 - Hair develop under armpits and in the pubic region.
 - Hips broaden and the pelvic region widens.
 - The menstrual cycle begins.

Chapter 7: Heat Transfer in Nature

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

- | | | | |
|--------|--------|--------|--------|
| 1. (a) | 2. (b) | 3. (a) | 4. (c) |
| 5. (d) | | | |

B. Fill in the blanks:

- | | | | |
|----------------|-------------|-----------|---------------|
| 1. temperature | 2. degree | 3. energy | 4. Hot, cold |
| 5. kelvin | 6. clinical | 7. 212 | 8. convection |

C. Write 'T' for true and 'F' for false:

- | | | | |
|------|------|------|------|
| 1. F | 2. T | 3. F | 4. F |
| 5. T | 6. F | | |

D. Match the following:

- | | | | |
|-------|-------|-------|-------|
| 1. -d | 2. -a | 3. -b | 4. -c |
|-------|-------|-------|-------|

E. Explain the reason of following:

1. The railway track on which trains run are made of iron. During summer, the iron expands. To allow this expansion, space has to be left between joints of the rail track if this not done, expansion of the track can cause them to bend. This can cause serious accidents.
2. Steel bridges one end is made to rest on rollers with enough space provided for expansion during summer.
3. When very hot liquid is poured in a glass tumbler, the tumbler sometimes cracks. This is because that inner wall gets heated first and expand but outer wall does not expand at that instant or fast. So, inner wall does not get space to expand therefore it cracks.
4. Wheels of these carts are made of wood but mounted by iron strip. This iron strip prevents it by tearing and breaking. This iron strip is not stick it with the nails. Actually, this is done by expansion method. Round iron strip is made slightly less than wood wheel, first it is heated, and after

expansion place the wood wheel inside it. After cooling, iron strip shrinks and grip the wheel tightly.

F. Answer the following questions:

1. Heat is a form of energy that may be changed from one form to another form.

Effects of Heat:

- On heating, ice changes into water and further on heating, it changes into steam. So, heat can change the physical state of the substance.
 - Heat can rise the temperature of substance.
 - On heating, movement of molecules increases so volume of substances increases. Therefore, heat causes expansion.
 - After boiling the liquid such as water, milk, some harmful bacteria present in it are died. Therefore, heat affects living organisms.
 - After heating, the vegetables, pulses and other thing become soft and their taste changes.
2. When we heat a substance, the movement of its molecules increases. This increases the molecular space. Therefore, the space occupied by the molecules, that is the volume of the substance, increases. Thus, it concludes that heat causes expanse.
 3. Gases have not fixed shape and volume because molecules of gases are not closely packed, they are free to move anywhere, they take the shape of container. Thus, gases expand more than liquids and solids on being heated.
 4. There are three types of scales to measure temperatue:
 - a. Celsius scale
 - b. Fahrenheit scale
 - c. Kelvin scale
 5. Liquids have not fixed shape because molecules of liquids are not closely (tightly) packed. Therefore, on heating molecules of liquids

vibrate freely here and there very fast. So, liquid expands more than solids on heating.

6. We know that,

$$C = 5/9(F - 32)$$

$$\text{or } F = 9/5 C + 32$$

$$= 9/5 \times 15 + 32$$

$$= 27 + 32$$

$$= 59^\circ\text{F}$$

7. $C = 5/9 (40 - 32)$

$$= 5/9 \times 8 = 4.44^\circ\text{C}$$

8. The water cycle, also known as the hydrologic cycle, is the continuous movement of water on, above, and below the surface of the Earth. It's a fundamental process that involves evaporation, condensation, precipitation, and collection, constantly replenishing and distributing water resources.

9. Water that falls to the surface then flows into rivers, lakes, and oceans, or soaks into the ground as groundwater, starting the cycle again. The water that seeps through gets stored in the pore spaces of sediments and the openings in rocks beneath the surface as groundwater.

10. The underground layers of sediments and rocks that store water in pore spaces are called aquifers. This is the water we extract by digging wells or drilling bore wells into aquifers. This water may be a few metres to hundreds of metres below the ground, depending on the location.

Assertion-Reason Based Questions

1. (c) A is true but R is false.
2. (d) A is false but R is true.

Case Study

1. vacuum
2. black surface, white surface

3. Land Breeze are during the night, the land becomes cooler faster than the sea. The air above the sea is still hot and rises. The cool air from above the land rushes towards the sea. This causes movement of air towards the sea at night.
4. Sea Breeze are during the day, the land gets heated faster than the sea. The hot air above the land rises creating a space. This space is filled in by the cool air above the sea rushing towards the land. This movement of air causes cool air to blow during the day.
5. Radiation is the process of transfer of heat from the heat source to the surroundings in the form of wave.

Chapter 8: Measurement of Time and Motion

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (d) 2. (c) 3. (b) 4. (b) 5. (d)

B. Fill in the blanks:

1. speedometer 2. m/s 3. uniform 4. Galileo
5. increasing 6. quartz

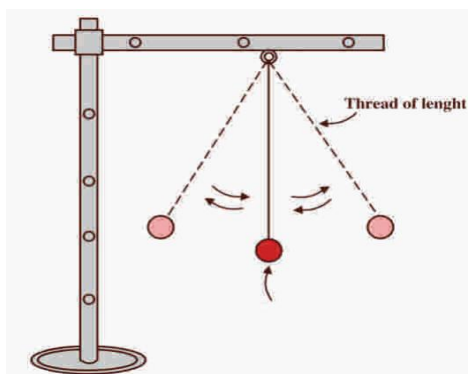
C. Write 'T' for True and 'F' for false:

1. T 2. T 3. T 4. T 5. T

D. Answer the following questions:

1. Sundial, sandclock etc. are the sources of measurement of time in ancient time.
2. A simple pendulum consists of a small metallic ball or a piece of stone, suspended from a rigid base by a thread. The metallic ball is called the bob of the pendulum. It is used to measure time.

- The pendulum is said to have one complete oscillation when its bob starting from its mean position 'O' and moves to 'A' then to 'B' and comes back at 'O'.



- The time taken to complete one oscillation is called time period.
- Time period is increased on increasing the length and time period is decreased on decreasing the length of pendulum.
- Now-a-days various type of electronic watches are available in the market. These watches have the crystals of a substance called quartz. A quartz clock tells more accurate time than a pendulum and other clocks.
- Time Period = Time taken/Number of oscillations

$$= 20 / 25 = 0.8 \text{ sec}$$
- Speed of bus = Distance / Time taken

$$= 360/6 = 60 \text{ km/hr}$$
- If a body covers equal distances in any equal intervals of time, however small the interval may be, then the motion is said to be uniform. If a body covers unequal distances in equal intervals of time, then its motion is termed as non-uniform.

Assertion-Reason Based Questions

- (b) Both A and R are true but R is not the correct explanation of the Assertion.
- (b) Both A and R are true but R is not the correct explanation of the Assertion.

Case Study

- (b)

2. equilibrium position
3. A simple pendulum has a mass or weight in the form of a bob hanging at one end of a string. The other end of the string is held at a fixed point.
4. The movement of the bob from one point to another through its equilibrium position is called an oscillation.
5. The time taken to complete one oscillation is called the time period.DX

Chapter 9: Life Processes in Animals

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

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

B. Fill in the blanks:

- | | | | |
|---------------|-----------|-----------------|------------|
| 1. oesophagus | 2. liver | 3. Gall bladder | 4. acid |
| 5. 7.5 m | 6. villi | 7. Swallow food | 8. Aerobic |
| 9. anaerobic | 10. gills | | |

C. Write 'T' for True and 'F' for false:

- | | | | | |
|------|------|------|------|-------|
| 1. F | 2. F | 3. T | 4. F | 5. T |
| 6. T | 7. T | 8. T | 9. F | 10. T |

D. Match the following:

- | | | | |
|--------|--------|---------|--------|
| 1. -b | 2. -e | 3. -a | 4. -c |
| 5. -f | 6. -d | 7. - I | 8. - k |
| 9. - h | 10.- g | 11. - j | |

E. Which part of the digestive canal is involved in:

1. Small intestine
2. Large intestine
3. Small intestine
4. Large intestine

F. Answer the following questions:

1. The various processes involved in nutrition, in animals that take in solid form, are as follows:
Ingestion, digestion, absorption, assimilation and egestion.
2. Hydra is a simple, multi cellular animal. It has a number of tentacles around its mouth which are used for ingestion of food. The tentacles entangle small aquatic animals and kill them with their stinging cell.
3. Some harmful bacteria grow and produce acid. This acid damage the enamel of our teeth and damage the teeth. This is called tooth decay. Sweets, toffees, chocolates, soft drinks are major culprits of tooth decay therefore, one should clean the teeth with tooth powder and datum twice a day and clean the teeth after eating.
4. Sometimes, when we are talking as well as eating or in hurry. We may cough, get hiccups or a choking sensation. This happens when food particles or water enter the windpipe (breathing pipe) instead of food pipe. The windpipe carries air from the nostrils to the lungs, it runs adjacent to the food pipe. But inside the throat, air and food share a common passage. During the act of swallowing a flap like valve closes the passage of the windpipe and food enters into the food pipe. But sometimes at the time of talking, some particles enter into windpipe and we feel choked, get hiccups or cough.
5. The liver is a reddish- brown gland situated in the upper part of the abdomen on the right side. It is the largest gland in the body. It secretes bile juice that is stored in a sac called the gall bladder. The bile plays an important role in the digestion of fats.
6. The pancreas is a large cream coloured gland located just below the stomach. The pancreatic juice acts on carbohydrates, fat and protein and

changes them into simpler forms. It secretes insulin which helps to enter the glucose in the cell to liberate energy.

7. The inner walls of the small intestine have thousands of fingers like outgrowths. These are called villi. The villi increase the surface area for absorption of the digested food. Each villus has a network of thin and small blood vessels close to its surface. The surface of the villi absorbs the digested food materials. The absorbed substances are transported via the blood vessel to different organs of the body where they are used to build complex substances such as the proteins are body building.
8. Its function is to absorb water and some salts from the undigested food material.
9. Ruminants quickly swallow the grass and store it in a part of the stomach called rumen. Here the food gets partially digested and is called cud. But later the cud returns to the mouth in small lumps and the animal chews it. This process is called rumination and these animals are called ruminants, that's why these animals chewing continuously.
10. We get instant energy from glucose because it is quickly absorbed into the bloodstream after digestion, allowing our cells to use it immediately for energy production.

G. Long answer type questions:

1. They allow air and other gases to enter and exit the nasal cavities. They contain branched bones or cartilages called turbinates in birds and mammals. Their function is to warm the air during inhaling and to remove moisture during exhalation.
2. Respiration in the presence of oxygen is termed as aerobic respiration. During aerobic respiration, energy, carbon dioxide gas and water are released.
3. Muscles are cramped after heavy exercise due to respiring anaerobically muscle cells. The partial breakdown of glucose produces lactic acid.

The accumulation of lactic acid causes muscles cramps. We get relief from cramps after a hot water bath or a massage with oil.

4. The nostrils (the passages in the nose trachea (windpipe), bronchi and lungs are the main organs of the respiratory system. Lungs are present in the chest cavity. This cavity is surrounded by ribs on the sides.
- 5.

Difference Between Cellular Respiration and Combustion

Cellular Respiration	Combustion
It is a slow process.	It is a fast process
It occurs at body temperature.	It occurs at high temperature.
It occurs only in living cells.	It can occur anywhere.
In this process, energy is released slowly-slowly and stored in cells.	In this process, energy is released in a form of heat and light.

6. From the nose cavity, the air passes through the pharynx or throat cavity to the windpipe or trachea. The windpipe branches into two smaller tubes called the bronchi. Each bronchus enters a lung. In the lungs, each bronchus branches out into smaller tubes called bronchioles. At the end of these tubes, tiny air sacs are present and called alveoli.
7. Each lung contains about 300 million alveoli. The air we breathe in eventually reaches these air sacs. The sacs are surrounded by blood vessels. The oxygen present in the air we breathe in, goes into the blood contained in blood vessels. The carbon dioxide presents in the blood passes out of the blood into the air sacs. Thus, exchange of gases takes place in the lungs.
8. Earthworms breathe through their skin. Air dissolves on the mucus of their skin, so they must stay moist to breathe. If worms dry out, they suffocate. As fresh air is taken in through the skin, oxygen is drawn into the worm's circulatory system, and the worm's hearts pump the oxygenated blood to the head area.

9. Most fish have special organs called gills that allow them to breathe oxygen by extracting it from water. Fish take in water through their mouth, and it passes across the gills on its way out. When it does, oxygen gets diffused into the blood stream and travels through the fish's body.
10. Leaves consist of tiny pores known as stomata. Gaseous exchange occurs through diffusion via stomata. Guard cells regulate each of the stomata. Exchange of gases occurs with the closing and opening of the stoma between the inferior of leaves and the atmosphere.

Assertion-Reason Based Questions

1. (b) Both A and R are true but R is not the correct explanation of the Assertion.
2. (c) A is true but R is false.

Case Study

1. (b)
2. (a)
3. (b)
4. Chocolates, sweets, soft drinks and other sugar products are the major culprits of tooth decay.
5. Therefore, one should clean the teeth with a brush or datun and dental floss (a special strong thread which is moved between two teeth to take out trapped food particles) at least twice a day and rinse the mouth after every meal.

Chapter 10: Life Processes in Plants

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (d)
2. (b)
3. (b)
4. (b)
5. (d)

B. Fill in the blanks:

1. nutrition
2. glucose
3. Chlorophyll
4. Parasitic
5. damp

C. Write 'T' for True and 'F' for false:

1. F
2. T
3. T
4. T
6. T

D. Match the following:

1. -b
2. -e
3. -d
4. -c
5. -f
6. -a

E. Answer the following questions:

1. This mode of nutrition in which the plants make their own food is called autotrophic nutrition. Organisms that make their own food are called autotrophs. Green plants prepare their own food from simple raw materials around them such as carbon dioxide, water, sunlight.
2. Carbon dioxide and oxygen from air is taken in through the tiny pores present on the surface of the leaves, called stomata.
3. Procedure
 - Take a green leaf and boil it for about five minutes in water to soften it.
 - Place it in a test tube containing alcohol.
 - Now place this test tube in a beaker of water and warm it until the alcohol begins to boil.
 - The alcohol will dissolve chlorophyll and the leaf will lose its green colour.
 - Now, wash the leaf in warm water to remove the alcohol. Now spread the leaf out flat on a dish and cover with iodine solution. Remove the leaf from the iodine and wash it with water.
 - On adding iodine solution, certain areas of leaf become blue black in colour. Compare these areas with the other leaf.

- The appearance of bluish-black colour indicates the presence of starch in green area of the leaf. This proves that green area of leaf can only prepare starch.
4. Animals and non-green plants such as fungi and bacteria cannot prepare their own food. They depend directly or indirectly on green plants for their food. This method of nutrition is called heterotrophic nutrition. Animals and non-green plants are known as heterotrophic.
 5. The mode of nutrition in which organisms take in nutrients in solution form from dead and decaying matter is called saprotrophic nutrition. Plants which use saprotrophic mode of nutrition are called saprotrophs such as fungi.
 6. Some organisms live together and share shelter and nutrients. This is called symbiotic relationship. For example, certain fungi live in the roots of trees. The tree provides nutrients to the fungus and in return receives help from it to take up water and nutrients from the soil. This association is very important for the trees. In organisms called lichens, a chlorophyll-containing partner, which is an algae and a fungus live together. The fungus provides shelter, water and minerals to the algal and in return, the algae provide food which prepares by photosynthesis.

Assertion-Reason Based Questions

1. (a) Both A and R are true and R is the correct explanation of the Assertion.
2. (a) Both A and R are true and R is the correct explanation of the Assertion.

Case Study

1. (d)
2. (d)
3. (d)
4. The mode of nutrition in which organisms make food themselves from simple substances is called autotrophic nutrition.

5. Carbon dioxide and oxygen from air is taken in through the tiny pores present on the surface of the leaves, called stomata.
6. Plants absorb mineral nutrients and water from the soil. After sometime, fertility of the soil becomes less so for being fertile the soil we add fertilizers and manures contain plant nutrients such as nitrogen, potassium, phosphorous etc. We can grow plants and keep them healthy if we fulfill the nutrient requirement of plants. When plants and animals die, they decay. Certain microorganisms like bacteria and fungi feed on the dead remains of plants and animals causing them to rot. Rotting releases the nutrients back into the soil in the form of humus. Plants use these mineral nutrients, especially nitrogen, present in the soil, for their growth. As a result, there is a depletion of nitrogen in the soil over a period of time. Manures and fertilizers are used to replenish the nutrients in the soil.

Chapter 11: Light: Shadows and Reflections

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

1. (a)
2. (b)
3. (d)
4. (b)
5. (d)

B. Fill in the blanks:

1. straight
2. Regular, smooth
3. irregular
4. virtual
5. Plane

C. Match the columns

1. - e
2. - c
- 3.- b
4. - a

D. Write 'T' for True and 'F' for false:

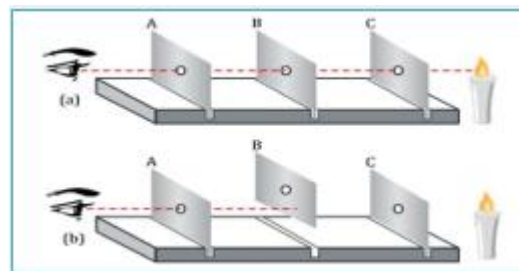
1. T
2. T
3. F
4. F
5. T

E. Answer the following questions:

1. Those objects which give out light of their own are called luminous objects. The sun, stars are the examples of luminous objects. Those objects which do not give out light of their own are called non-luminous objects. These objects become visible when light from a luminous body falls on them and these objects reflect some part of light on our eye retina. For example, wood, book.

2. Procedure

- Take three square pieces of cardboard make them straight with the help of support.
- Make the holes in all three cardboards at same point.
- Keep a burning candle on the table, with its flame at the level of the holes.



Observation

Now you will see the flame of candle through holes. If you displace one cardboard then you will not see the flame of candle.

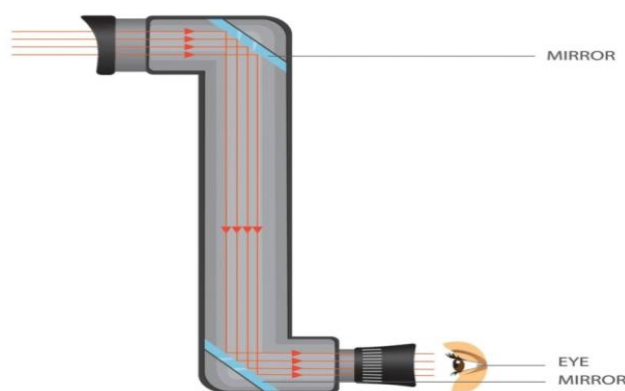
Conclusion

It proves that light travels in a straight line.

3. On ambulance vans, AMBULANCE is written as ECNALUBMA because when the driver of a vehicle ahead of an ambulance looks in his/her rearview mirror. He/she can read AMBULANCE written on it and give way to it.
4. When the rays of light after getting reflected from a mirror actually meet at a point, a real image is formed. A real image can be obtained on a

screen. When the rays of light after getting reflected from a mirror appear to meet at a point, a virtual image is formed.

5. A periscope is an optical instrument that allows you to see over, around, or through obstacles by using mirrors or lenses to redirect light. It works based on the principle of reflection, where light from an object is reflected by mirrors and directed to the viewer's eye. Commonly used in submarines and tanks, periscopes enable observation from concealed or low positions.



6. A pinhole camera is a simple camera that uses a tiny aperture, or pinhole, instead of a lens to focus light and form an image. This creates a real, inverted image on the opposite side of the light-proof box, which is a basic form of the camera obscura effect. Light rays from an object pass through the pinhole and project an inverted image onto the screen.

Assertion-Reason Based Questions

1. (b) Both A and R are true and R is not the correct explanation of the Assertion.
2. (a) Both A and R are true and R is the correct explanation of the Assertion.

Case Study

1. (c)
2. (d)
3. If the surface on which a beam of light falls from an object is smooth and highly polished, it reflects light in one direction. The beam of light reflected is parallel and in one direction. This is called regular reflection.

4. If the reflecting surface is rough, it does reflect light, but the beam of light reflected travels in all directions. This is called diffused reflection.
5. A plane mirror has the ability to reflect light over large distances. Plane mirrors are also used in garments, because they reflect light. You can see your clothes from every angle.

Chapter 12: Earth, Moon and Sun

Assessment Time

Multiple Choice Questions

A. Darken the correct circle in the OMR sheet:

- | | | | |
|--------|--------|--------|--------|
| 1. (b) | 2. (c) | 3. (c) | 4. (a) |
|--------|--------|--------|--------|

B. Fill in the blanks:

- | | | | |
|---------------|-------------|----------|----------|
| 1. East, west | 2. Rotation | 3. total | 4. lunar |
|---------------|-------------|----------|----------|

C. Write 'T' for True and 'F' for false:

- | | | | |
|------|------|------|------|
| 1. F | 2. T | 3. F | 4. F |
|------|------|------|------|

D. Answer the following questions:

1. Earth's rotation refers to its spin on its axis, which is an imaginary line passing through the North and South Poles.
2. The Earth's revolution is its orbital motion around the Sun, taking approximately 365.25 days (one year) to complete. This movement, combined with the tilt of Earth's axis, is responsible for the cycle of seasons.
3. At certain times, the Moon can come in between the Sun and the Earth in a way that obstructs the light from the Sun from reaching us. This is known as a solar eclipse.
4. As the Moon revolves around the Earth, sometimes the Earth can block the sunlight from

reaching the Moon. This is known as a lunar eclipse.

5. The cycle of the Earth's tilt and its revolution around the sun leads to the predictable sequence of spring, summer, autumn, and winter in each hemisphere.