PULLOUT
Worksheets
SOLUTIONS
Science
Class 7

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(iii)
SUMMATIVE ASSESSMENT WORKSHEET-1

Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: Pitcher plant.
Ans 2: Chlorophyll.
Ans 3: A lichen is an association of an algae and a fungus.
Ans 4: Starch.
Ans 5: This is due to growth of fungi on the loaf of bread.
Ans 6:

\[
\begin{align*}
6 \text{ CO}_2 \quad &+ \quad 6\text{H}_2\text{O} \quad \longrightarrow \quad \text{C}_6\text{H}_{12}\text{O}_6 \quad + \quad 6\text{O}_2 \\
\text{Carbon dioxide} \quad &\quad \text{Water} \quad \quad \text{Glucose} \quad \quad \text{Oxygen}
\end{align*}
\]

Ans 7: By adding manure or fertilisers in the soil, nutrients can be replenished.
Ans 8: The pitcher plant does not get all the required nutrients especially those of nitrogen from the soil, hence it feeds on insects.
Ans 9: Put 2-3 drops of dilute iodine solution on the leaves. Appearance of a blue-black colour indicates presence of starch in the leaves.
Ans 10: Autotrophs means: Auto = self, trophs = nourishment

Autotrophic nutrition is the mode of nutrition in which organisms make food for themselves from simpler substances. Green plants and algae are autotrophs.

Ans 11:

(i) Air generally consists of fungal spores. When these spores come in contact with warm and moist things they germinate and grow. During rainy season, there are more chances of things getting wet. Fungi can grow on pickles, leather, clothes and various other articles which are kept in hot and humid weather for a long time. Hence, fungi appears more in rainy season.

(ii) Fungi have a saprophytic mode of nutrition. They secrete digestive juices on the dead and decaying matter and convert it into a solution. This solution provides them with nutrients which are easily absorbed by them.

Ans 12:

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Saprotroph</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) A parasite mostly lives in or on the living host.</td>
<td>(1) A saprotroph lives on dead and decaying matter.</td>
</tr>
<tr>
<td>(2) Parasite deriving nutrients from the living organisms.</td>
<td>(2) Saprotroph deriving nutrients from dead and decaying organisms.</td>
</tr>
<tr>
<td>Example- <em>Cuscuta</em> (Amarbel)</td>
<td>Example - <em>Fungi</em></td>
</tr>
</tbody>
</table>

Ans 13:

(i) Photosynthesis is the process of preparation of food by green plants from carbon dioxide and water in the presence of green pigment, chlorophyll using the light energy of sun and releasing excess of oxygen as a by-product.

(ii) Leaves are the main site of photosynthesis in plants.
Ans 14: Parasite

(1) A parasite mostly lives in or on the living host.
(2) Parasite derives nutrients from the living organisms.
Example—Cuscuta (Amarbel)

Saprotroph

(1) A plant on which parasite lives is called host.
(2) Host is a source of nutrients for a parasite.
Example—plant on which cuscuta lives.

Ans 15: Some plants can trap insects and digest them. Insect eating plants are known as insectivorous plants, e.g. Pitcher plant. In pitcher plant, the leaf is modified to a pitcher like structure. The tip of the leaf forms a lid, which can open and close the mouth of the pitcher. There are hair which are directed downwards inside the pitcher. When an insect lands in the pitcher, the lid closes and the trapped insect gets entangled into the hair. The digestive juices secreted in the pitcher digest the insect. The plant absorbs nutrients from the dead insect.

Ans 16: The relationship in which two different organisms live together in such a way that they benefit each other in some way is called the symbiosis.

Examples:
(i) In lichens, chlorophyll containing partner which is an algae and a fungus live together. The fungus gives shelter, water and minerals to the algae and in return, the algae provides it food, prepared by photosynthesis.
(ii) Symbiotic relationship between the roots of the trees and fungi. The tree provides nutrients to the fungus and in return gets water and nutrients from the soil with help of fungus. This association is very beneficial for the trees.

Value Based Question:
Ans 1: 1. We get oxygen by the process of photosynthesis which is essential for life.
2. Plants prepare their own food by this process only.
3. It helps to maintain oxygen and carbon di oxide balance in nature.

FORMATIVE ASSESSMENT WORKSHEET-2

Match the following:

Neatly label the following diagram:
Sun; carbon di oxide; chlorophyll; oxygen; water and minerals

Draw and label the diagram of stomata.
(students should do this question themselves)

Label the diagram below:
Leguminous plant i.e. pea; Rhizobium bacteria; symbiotic relationship

Fill in the blanks:
1. producers or autotrophs 2. starch 3. chlorophyll
4. carbon di oxide/oxygen 5. Glucose(carbohydrate) 6. Fungi
7. Lichens 8. Rhizobium

Name the Following:
**SUMMATIVE ASSESSMENT WORKSHEET-3**

**Objective type questions**

Choose the correct option:

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

**Answer the Following:**

Ans 1: The digestive tract and the associated glands.
Ans 2: Ingestion.
Ans 3: Salivary glands.
Ans 4: Taste buds present on our tongue.
Ans 5: Liver.
Ans 6: **Similarity:** Both amoeba and human use digestive juices to digest food.

**Difference:** Human needs to chew food whereas in amoeba, there is no chewing.

Ans 7: Premolars and molars are used for chewing and grinding.

Premolars are 4 and molars are 6 in each jaw.

Ans 8: We use canines teeth for piercing and tearing. There are four canines in each jaw.

Thus, total number of canines is eight.

Ans 9: There are four types of teeth in humans.

They are: (a) Incisors (b) Canines (c) Premolars (d) Molars

Ans 10: The main steps of digestion in humans are:

(1) Ingestion  (2) Digestion  (3) Absorption

(4) Assimilation  (5) Egestion.

Ans 11: Grass eating animals like cows, buffaloes etc. quickly swallow the grass and store it in a separate part of the stomach called rumen.

In rumen, the food is partially digested and is called cud.

The cud returns to the mouth in small lumps and is chewed by the animal. The process is known as rumination and the animals are called ruminants.

Ans 12: The functions of the tongue are as follows:

(1) It is used for talking.
(2) It mixes saliva with the food during chewing and helps in swallowing food.
(3) It is used to identify the taste of food like sweet or salty etc. due to presence of taste buds on it.

Ans 13: **Milk teeth**  **Permanent teeth**

1. It is the first set of teeth which grows during infancy.
2. These teeth fall off at the age of six to eight years.
3. The number of these teeth is about twenty.

1. It is the second set of teeth that replaces the milk teeth.
2. These teeth may last throughout life or fall off during old age.
3. The number of these teeth is thirty-two.
Ans 14: (a) Regions of taste buds on tongue

Ans 15: Amoeba is a single celled organism found in pond water. It has a cell membrane, a dense, round nucleus and many bubbles like vacuoles. Amoeba constantly changes its shape and position. It pushes out one or more finger like projections, called pseudopodia or false feet for movement and capture of food. Amoeba feeds on some microscopic organisms. When it senses food, it pushes out pseudopodia around the food particle and engulfs it. The food becomes trapped in a food vacuole and digested by the digestive juices.

Ans 16: The inner walls of the small intestine have thousands of fringes like outgrowths known as villi.

Functions:
(a) The villi increase the surface area for absorption of the digested food.
(b) Each villi has a network of thin and small blood vessels close to its surface.
(c) The surface of the villi absorbs the digested food materials.
(d) The absorbed substances are transported via the blood vessels to different organs of the body.

Value Based Question:
Ans 1:
(i) No, the step taken by Rajesh was not right.
(ii) It can lead to addiction and can affect the health adversely.
We should be discouraged to get influenced from others of taking any food supplements that harm their health.

FORMATIVE ASSESSMENT WORKSHEET-4

Fill in the blanks:
1. digestion  2. Lichen  3. Insectivorous plant  
4. nutrition  5. symbiosis.

Correct the following sentences by correcting the highlighted words:
1. Leave are the main site of photosynthesis in plants.
2. Boiled and cooled water with a pinch of salt and some sugar which is given to the patient suffering from diarrhea is called Oral Rehydration Solution (ORS).
3. False feet in amoeba are called pseudopodia.
4. Cellulose is digested by ruminants in caecum.
5. Green pigment present in leaves is chlorophyll.

**Match the items in Column I with Column II:**

1. Bile secretion
2. Storage of undigested food
3. Complete digestion
4. Absorption of water
5. Release of faeces
6. Acid release

**Complete the table:**

<table>
<thead>
<tr>
<th>Name Of Animal</th>
<th>Kind Of Food</th>
<th>Mode Of Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snail</td>
<td>Insects</td>
<td>Scraping</td>
</tr>
<tr>
<td>Ant</td>
<td>Grains</td>
<td>Scraping, Chewing</td>
</tr>
<tr>
<td>Eagle</td>
<td>Fish</td>
<td>Capturing, Swallowing</td>
</tr>
<tr>
<td>Humming-bird</td>
<td>Nectar</td>
<td>Sucking</td>
</tr>
<tr>
<td>Lice</td>
<td>Blood</td>
<td>Sucking</td>
</tr>
<tr>
<td>Mosquito</td>
<td>Blood</td>
<td>Sucking</td>
</tr>
<tr>
<td>Butterfly</td>
<td>Nectar</td>
<td>Siphoning</td>
</tr>
<tr>
<td>House Fly</td>
<td>Liquid Food</td>
<td>Sponging</td>
</tr>
</tbody>
</table>

**Label the following diagrams:**

1. A — Bitter
   B — Sour
   C — Salty
   D — Sweet

2. A — Pseudopodia
   B — Nucleus
   C — Food Vacuole
Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: The rearing of silkworms for obtaining silk is known as sericulture.
Ans 2: The sheared skin with hair is thoroughly washed in tanks to remove grease, dust and dirt. This is known as scouring.
Ans 3: Hundreds of eggs at a time.
Ans 4: Cocoons are kept either under the sun or boiled or exposed to steam.
Ans 5: Wool fibres retain air whereas silk fibres do not. Therefore, wool has greater bulk as compared to silk.
Ans 6: The caterpillars eat their own shed skin during their growing stage and has no other food option. So they need to shed their skin when they grow bigger.
Ans 7: The process of taking out threads from the cocoon for use is known as reeling.
Ans 8: Shearing, Scouring, Sorting, Drying, Dying, Spinning or Rolling into yarn and Weaving.
Ans 9: A thick coat of hair helps in trapping a lot of air. As, air is a poor conductor of heat, it keep these animals warm.
Ans 10: The skirting process begins after the fleece is shorn. Skirting is an important part of preparing a fleece for processing and removing “junk” wool, stains, second cuts, and loose vegetable matter from the wool.
Ans 11: (A) Adult silk moths female  (B) Eggs on mulberry leaves  
(C) Silkworm / Caterpillar  (D) Pupa / Cocoon  (E) Cocoon with developing moth
Ans 12: (i) The process of removing the fleece of sheep from its body along with a thin layer of skin is called shearing. 
(ii) Usually shearing is done during the hot weather. 
(iii) The fleece provides woollen fibres that are processed to obtain woollen yarn.
Ans 13: (a) The process of applying a comparatively permanent color to fibre, yarn or fabric is known as dyeing. Dyeing is done to give attractive colours to fabrics and wools. 
(b) Burrs are the small fluffy fibres which are picked out from the hair of wool yielding animals.
Ans 14: (a) Two types of fibres obtained from the fleece of a sheep are longer fibres and shorter fibres. 
(b) Longer fibres are used for making wool. 
(c) The natural colour of the fleece of sheep and goat is black, brown or white.
Ans 15: (i) The eggs of silk moth are incubated until they hatch and become larvae called caterpillars or silkworms. 
(ii) These are fed on mulberry leaves for about six weeks. 
(iii) Each larva sheds its skin four times. This is called moulting. During this period, they spin cocoons around it.
(iv) The cocoons are then gathered and boiled or exposed to steam to kill the insects inside them.
(v) The silk fibres are obtained from cocoons by a process called as reeling.
(vi) Then these fibres are spun into thread is called raw silk.

**Ans 16 :** The wool which is used for knitting sweaters or for weaving shawls is the finished product of a long process, involves the following steps:
(i) **Shearing** : The fleece of the sheep along with a thin layer of skin is removed from its body.
(ii) **Scouring** : The sheared skin with hair is thoroughly washed in tanks to remove grease, dust and dirt. Now-a-days scouring is done by machines.
(iii) **Sorting** : After scouring, sorting is done. The hairy skin is sent to a factory where hair of different textures are separated or sorted.
(iv) **Dyeing** : The fibers can be dyed in various colors, as the natural fleece of sheep and goats is black, brown or white.
(v) **Carding and roving** : The fibers are straightened, combed and rolled into yarn. The longer fibers are made into wool for sweaters and the shorter fibers are spun and woven into woollen cloth.

**Value Based Question:**
**Ans :** Advantages of synthetic fibres are that they are cheap, easily available, not attacked by insects, easy to store and dries up quickly.

**FORMATIVE ASSESSMENT WORKSHEET-6**

Give one word :
1) Shearing 2) Sorting 3) Scouring
4) Cocoon 5) Sericulture 6) Mulberry

**Fill in the blanks :**
1. Fleece 2. Laama and Alpaca 3. Kashmiri goat
4. caterpillar or silkworms 5. Sericulture 6. mulberry silk moth
7. Chaina 8. Anthrax

**Indian breeds of sheep :**
Lohi; Rampur bushair; Nali; Bakharwal; Marwari; Patanwadi (any 5)

**Five Qualities of wool :**

<table>
<thead>
<tr>
<th>Brown Fleece</th>
<th>Carpet Wool</th>
<th>Coarse Wool</th>
<th>For Hosiery</th>
<th>For woolen shawls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttar Pradesh</td>
<td>Rajasthan; Haryana; Punjab</td>
<td>Gujarat</td>
<td>Gujarat</td>
<td>Jammu and Kahmir</td>
</tr>
</tbody>
</table>
SUMMATIVE ASSESSMENT WORKSHEET-5

Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: The range of laboratory thermometer is from -10°C to 110°C.

Ans 2: Temperature of our body can be measured by the help of clinical thermometer.

Ans 3: Kink prevents mercury level from falling on its own when thermometer is taken out of the mouth.

Ans 4: The range of the clinical thermometer is from 35°C to 42°C.

Ans 5: Temperature is the degree of hotness or coldness of a body.

Ans 6: Air gets trapped between two thin sweaters. Being a bad conductor of heat, air does not allow the body heat to flow outside. Hence, two thin sweaters keep us warmer than wearing just one thick sweater.

Ans 7: In convection, heat gets transferred by the actual movement of the molecules. Heated air molecules are lighter and hence, they move in the upward direction. It is replaced by the cold air molecules which are heavier. Again these cold air molecules get heated and rise up. In this way, air gets heated. So, heat is transferred in air by convection. The smoke moves in the upward direction as warm air is lighter and so, it rises upwards.

Ans 8: Conduction is the mode of heat transfer in which particles at the hot end pass on their heat energy to the neighbouring particles towards the cold end without actually moving from their position. In solids, the heat is transferred only by conduction.

Ans 9: The heat flows from a body at a higher temperature to a body at a lower temperature. There are three ways by which heat can flow from one object to other. These are conduction, convection and radiation.

Ans 10: The materials which allow heat to pass through them easily are known as conductors. For example—copper, iron etc.

The materials which do not allow heat to pass through them are known as insulators. For example—wood, plastic etc.

Ans 11: Conduction: Heat flows in solids from hotter end to the colder end. The molecules do not move, only transfer heat to each other. This process of flow of heat is called conduction. Eg: Heating of metal spoon

Convection: In the process of convection, heat flows in fluids due to movement of molecules. For example if you heat water the molecules, which gets heat energy moves up. To fill the empty place colder molecules moves down and gets heat energy. In this way all the fluid is heated. Eg: Land and sea breezes

Ans 12: We use woolen and dark coloured clothes during winter, because dark coloured clothes absorb most of the heat, it keeps us warm. Wool is a bad conductor of heat and air is trapped between wool fibers. It prevents loss of heat from our body.
Ans 13: Clinical thermometer is used to measure our body temperature. The range of this thermometer is from 35°C to 42°C. While for measuring temperature of other objects, we use laboratory thermometer. The range of this thermometer is from –10°C to 110°C.

Ans 14: In liquids (water), transfer of heat takes place due to convection, which involves actual movements of the particles. Hot water moves up and cold water moves down to take its place, which is shown by the cyclic movement of the paper pieces. However, in solids, conduction takes place where heat transfer is due to the vibration of the particles without leaving their position. So, no movement of iron particles is observed.

Ans 15: During the day, the land gets heated faster than the water. The air over the land becomes hotter and rises up. The cooler air from the sea replaces the hot air. The warm air from the land moves towards the sea to complete the cycle. The air from the sea is called the sea breeze. At night, it is exactly the reverse. The water cools down more slowly than the land. So, the cool air from the land moves towards the sea. This is called the land breeze.

Value Based Question:
Ans 1: We would prefer to wear pink shirt in summers as compared to black shirt. Light coloured clothes absorb minimum heat and reflect maximum and so, we feel cooler in summers by wearing light coloured clothes.

FORMATIVE ASSESSMENT WORKSHEET-8

State whether true or false:

Fill in the blanks:
1. 98.6°F 2. Wood and rubber 3. Copper and iron 4. Light 5. Dark

Match the following:

A. Conduction  B. Convection  C. Radiation

Name the following:
1. Radiation  2. Thermometre  3. Insulator  4. 98.6°F or 37°C

(Students should draw diagrams themselves)
Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: Highly concentrated aqueous solution of sodium chloride is known as brine.

Ans 2: Salts which absorb water from the surrounding are known as deliquescent salts. e.g. 
CuSO₄·5H₂O. This property of compounds is called deliquescence.

Ans 3: Acidic.

Ans 4: Ammonium hydroxide.

Ans 5: In soured milk or curd.

Ans 6: The factory wastes contain acids which are harmful for the organisms living in water (fish etc.). Hence, these are neutralized by adding basic substances.

Ans 7: The solution may be basic or neutral. Both types of substances have no effect on blue litmus.

Ans 8: When there is excess of acid in stomach, antacids are taken. Antacid like milk of magnesia neutralizes the effect of excessive acid as it is a base. Thus, it relieves the person suffering from acidity.

Ans 9: Solutions of substances which show different colour in acidic, basic and neutral solutions are known as indicators. For example—Litmus, China Rose, etc.

Ans 10: An acid and a base neutralize each other and form a salt. Salt may be acidic, basic or neutral. For example—Sodium chloride.

Ans 11: The rain containing excess of acids is called acid rain. The rain becomes acidic due to the presence of carbon dioxide, sulphur dioxide and nitrogen dioxide in air. These gases dissolve in raindrops to form carbonic acid, sulphuric acid and nitric acid. Acid rain can cause damage to historical monuments, buildings, plants and animals.

Ans 12: When an ant bites, it injects an acidic liquid into the skin, which causes the burning sensation and pain. Calamine solution (Zinc carbonate) is basic in nature. It neutralizes the acid and relieves us from the pain.

Ans 13: Litmus is obtained from lichens. It has purple colour in distilled water. Litmus is used as indicator. When added to an acidic solution, it turns red and when added to a basic solution, it turns blue. It is available in the form of solution or in strips of paper as blue litmus or red litmus paper.

Ans 14: Acid: They are sour in taste. They turn blue litmus red. The concentration of hydrogen ion is more in acids.

Base: They are bitter in taste. They turn red litmus blue. The concentration of hydroxyl ion is more in bases.

Ans 15: We know that turmeric solution turns red in contact with bases and is not affected by acids and neutral substances. So, we put turmeric indicator in some portions of all the three liquids labeled as A, B and C respectively. ‘B’ would turn red, indicating that it is a base.
Then, one of the liquid (A or C) is added to it gradually. If the solution turns yellow, the added liquid is hydrochloric acid because acid neutralises the base. Otherwise, the added liquid is sugar solution.

**Ans 16:**
(i) (a) When the soil is acidic bases like quick lime (calcium oxide) or slaked lime (calcium hydroxide) are added to it.
(b) If the soil is basic, organic matter is added to it.
(ii) During neutralisation reaction does the temperature of container increases because heat is liberated during the reaction.
(iii) Neutral

**Value Based Question:**

**Ans 1:** We should brush our teeth twice a day as bacteria present in the mouth produce acids by degradation of sugar and food particles remaining in the mouth after eating. The best way to prevent this is to clean the mouth using toothpaste which are generally basic. These can neutralise the excess acid and prevent tooth decay.

**FORMATIVE ASSESSMENT WORKSHEET-10**

**Fill in the blanks:**
(i) sour
(ii) bitter
(iii) Lichens
(iv) phenolphthalein
(v) neutral

**Match the following:**

1. Milk of magnesia
2. Formic acid
3. A natural indicator
4. Turns blue litmus red
5. Turns red litmus blue

(Student should do this activity themselves)

**Acidic Nature:** Vinegar; Lemon Juice; Curd

**Basic Nature:** Soap; Lime water; Window cleaner

**Neutral Substances:** Common salt; Sugar

**Complete the Table:**

<table>
<thead>
<tr>
<th></th>
<th>Curd</th>
<th>Salt</th>
<th>Lime Water</th>
<th>Lemon Juice</th>
<th>Window Cleaner</th>
<th>Sugar</th>
<th>Vinegar</th>
<th>Baking Soda</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<td>No change</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Name the Following:**

1. Litmus
2. Calcium hydroxide
3. Milk of Magnesia
4. Salt and water
5. Calcium hydroxide
6. Dark pink (Magenta)

**Name the acid:**

1. Acetic acid
2. Formic acid
3. Lactic acid
4. Oxalis acid
5. Tartaric acid
Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: When iron oxide is hydrated, it is known as Rust ($\text{Fe}_2\text{O}_3 \cdot \text{XH}_2\text{O}$)

Ans 2: Chemical change.

Ans 3: A change in which a new substance with different properties is formed, is known as a chemical change.

Ans 4: Malleability is a property by virtue of which a metal can be beaten into thin sheets without breaking.

Ans 5: The change which takes too much time for its completion is considered as slow change. In this process, the formation of product from the reactant takes long time.

Ans 6: In coastal areas, there is more moisture in air due to the presence of sea. In deserts, there is shortage of water and hence, air is almost dry. For rusting, both air (Oxygen) and moisture are essential. So, rusting is faster in coastal areas than in deserts.

Ans 7: Curd is formed by adding some sour substance to milk and keeping it undisturbed for some hours. Some useful bacteria help in the setting of curd. Curd cannot be converted into milk. It is a different substance than milk. Hence, formation of curd is a chemical change.

Ans 8: When magnesium oxide is dissolved in water, magnesium hydroxide is formed.

$$\text{MgO} + \text{H}_2\text{O} \rightarrow \text{Mg(OH)}_2$$

Ans 9: Salt is obtained by the evaporation of sea water. The salt obtained in this manner is not pure and its crystals are small. It is recrystallized to obtain it in pure form.

Ans 10: Ethanoic acid reacts with sodium hydrogen carbonate to evolve brisk effervescence of carbon dioxide.

$$\text{CH}_3\text{COOH} + \text{NAHCO}_3 \rightarrow \text{CH}_3\text{COONa} + \text{CO}_2 + \text{H}_2\text{O}$$

Ans 11: When a candle burns, both physical and chemical changes take place.

On burning candle, the wax melts but can be solidified again on cooling. This shows that melting of wax is a physical change.

Burning of candle also produces light and some gases like carbon dioxide. Hence, burning of wick of the candle is a chemical change.

Ans 12: Physical change

1. No new substance is formed. A substance undergoes a change in its physical properties.

Example: Melting of ice, lighting of bulb

Chemical Change

1. One or more new substances are formed by chemical reaction.

Example: Burning of coal, photosynthesis

2. Chemical change is irreversible.
Ans 13: A more reactive element displaces a less reactive element from its compound. For example when a piece of iron metal is placed in copper sulphate solution, then iron sulphate solution and copper metal is formed.

Ans 14: When the metal from the base displaces hydrogen from the acid, it combines to form salt and water. In this way, the base neutralizes the acid and destroys its acidity.

\[
\text{HCL} + \text{NAOH} \rightarrow \text{NaCl} + \text{H}_2\text{O} \\
\text{Acid} + \text{Base} \rightarrow \text{Salt} + \text{Water}
\]

Ans 15: A cup full of water is taken in a beaker and a few drops of dilute sulphuric acid are added into it. The water is heated. When it starts boiling, copper sulphate powder is added slowly while stirring continuously till no more powder can be dissolved. The solution is filtered and allowed to cool down. Crystals of copper sulphate slowly form at the bottom of the beaker.

Ans 16: When a piece of iron is left in open for some time, it acquires a film of brownish substance called rust. The process is known as rusting.

\[
\text{Iron (Fe)} + \text{Oxygen (O}_2\text{ from the air)} + \text{water (H}_2\text{O)} \rightarrow \text{Rust (iron oxide) (Fe}_2\text{O}_3\cdot\text{H}_2\text{O)}
\]

Both Oxygen and water or water vapours are essential for rusting.

Value Based Question:

Ans 1: We can prevent rusting by following methods:

1. By painting or greasing:- Apply a coat of paint or grease regularly on iron articles.
2. By galvanizing:- Deposit a layer of zinc or chromium on iron. The process is known as galvanization.

FORMATIVE ASSESSMENT WORKSHEET-12

Fill in the blanks:


Correct the following sentences by replacing the highlighted words:

1. Change in the physical properties of a substance is termed as physical change.
2. Freezing is the process in which water turns to ice when cold enough (below 0°C temperature.)
3. Formation of new substances by change in one or more substances is called chemical change.
4. The process of deposition of brownish layer on iron when it is exposed to air and water is called rusting.
5. Crystalization process of formation of solid crystals from solution.

Match the following:


Name the Following:

1. Iron oxide 2. Galvanization 3. Stainless Steel

Identify the type of change:

1. Physical Change 2. Physical Change 3. Chemical Change

1. It helps in extracting metals from its ore.
2. It helps in the preparation of many useful medicines.
WEATHER, CLIMATE AND ADAPTATIONS OF ANIMALS TO CLIMATE

SUMMATIVE ASSESSMENT WORKSHEET-13

Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1 : It is the measure of moisture in the air.
Ans 2 : Migration.
Ans 3 : Weather is defined as the condition of the atmosphere with respect to the temperature, humidity, rainfall, wind speed etc.
Ans 4 : The weather reports are prepared by the Meteorological Department of the Government. This department collects data on temperature, wind etc. and makes the weather prediction.
Ans 5 : Penguins often huddle together to keep warm and rotate positions to make sure that each penguin gets a turn at the centre of the heat pack.
Ans 6 : When we move towards western region, we see the typical desert climate, which is present there because of the high temperature during most part of the year. This region receives very little rainfall.
Ans 7 : It is nature’s way of keeping the potential difference between the earth’s surface and its atmosphere within certain limits. Further, a net flow of electrons from the atmosphere (rather clouds) keep the earth always negatively charged for electrical purposes.
Ans 8 : Large ears of the elephant help it to hear even very soft sounds. They also help the elephant to keep cool in the hot and humid climate of the rainforest.
Ans 9 : The tropical regions have generally a hot climate because of its location around the equator. Even in the coldest month, the temperature is generally higher than about 15°C. During hot summers, the temperature may cross 40°C. Days and nights are almost equal in length throughout the year. These regions get plenty of rainfall.
Ans 10 : Polar bears have white fur so that they are not easily visible in the snowy white background, which help to protect them from their predators. It also helps them in catching their prey. Polar bear have thick layer of fat to protect them from extreme cold.
Ans 11 : The characteristics are:
   (a) The polar regions present an extreme climate.
   (b) These regions are covered with snow and it is very cold for most part of the year.
   (c) For six months, the sun does not set while for the other six months, the sun does not rise.
   (d) In winters, the temperature can be as low as -37°C.
Ans 12 : An adaptation is trait of an organism that has been favoured by natural selection. Adaptations are of following types:
   (a) Structural adaptations are special body parts of an organism that help it to survive in its natural habitat (e.g., skin colour, shape, body covering).
(b) Behavioral adaptations are special ways of a particular organism that behaves to survive in its natural habitat.

(c) Physiological adaptations are systems present in an organism that allow it to perform certain biochemical reactions (e.g., making venom, being able to keep a constant body temperature).

**Ans 13**: Main features of the tropical region are:

(a) The tropical region has generally a hot climate because of its location around the equator.

(b) Even in the coldest month, the temperature is generally higher than about 15°C. During hot summers, the temperature may cross 40°C.

(c) Days and nights are almost equal in length throughout the year.

(d) These regions get plenty of rainfall.

**Ans 14**: The lion-tailed macaque (also called Beard ape) lives in the rainforests of Western Ghats. Its most outstanding feature is the silver-white mane, which surrounds the head from the cheeks down to its chin. It is a good climber and spends a major part of its life on the tree. It feeds mainly on fruits. It also eats seeds, young leaves, stems, flowers, and buds. This beard ape also searches for insects under the bark of the trees. Since it is able to get sufficient food on the trees, it rarely comes down on the ground.

**Ans 15**: (a) Polar bears have white fur so that they are not easily visible in the snowy white background which help it to protect them from their predators. It also helps them in catching their prey.

(b) They have two thick layers of fur to protect them from extreme cold.

(c) They also have layer of fat under their skin.

(d) The polar bear goes for swimming for physical activities on warm days necessary for cooling.

(e) Its paws are wide and large, which help it not only to swim well but also to walk with ease in the snow.

(f) Polar bears can remain under water for long durations.

(g) It has a strong sense of smell so that it can catch its prey for food. (Any 5)

**Ans 16**: (i) Tropical rainforests lie between the Tropic of Cancer and the Tropic of Capricorn, or 1,400 miles north and south of the Equator. This region receives rainfall distributed regularly throughout the year, about 6-33 feet a year. It remains frost free and warm all year long, with temperatures between 70° and 85°F with very little daily fluctuation. Tropical rainforests are found in Western Ghats and Assam in India, Southeast Asia, Central America, and Central Africa. Because of continuous warmth and rain, this region supports a wide variety of plants and animals.

(ii) The major types of animals living in the rainforests are monkeys, apes, gorillas, lions, tigers, elephants, leopards, lizards, snakes, birds, and insects. The climatic conditions in rainforests are highly suitable for supporting an enormous number and variety of animals. As there is competition for food, some animals are adapted to get food, which is not easily reachable.

**Value Based Question**

**Ans 1**: Adaptations help an organism to survive because they help the animal to get food easier, or to find shelter, and help them get the necessities they need to live. Organisms adapt to their new environments to survive and meet the two goals of all animal life: Survive and Reproduce.
FORMATIVE ASSESSMENT WORKSHEET-14

Choose and tick the correct option:

1. Incorrect
2. Correct
3. Incorrect
4. Correct
5. Incorrect

Recognize the animals given below and write any two adaptive features of each in the given spaces:

Penguins

Two adaptive features:

1. It has thick skin with a lot of fat to protect it from cold.
2. It is white in colour and merges well with the white background.

Polar Bear

Two adaptive features:

1. It has two thick layers of fat.
2. It has very strong sense of smell.

(students should do this question themselves)

1. Moderately hot and wet
2. Very hot and wet
3. Hot and dry
4. Wet

1. It has a long trunk.
2. It has large ears.

Fill in the Blanks:

1. Climate
2. adapted
4. Indian Elephant
5. Red-eyed frog
6. Atmosphere
7. Rain Gauge
WINDS, STORMS AND CYCLONES

SUMMATIVE ASSESSMENT WORKSHEET-15

Objective type questions
Choose the correct option:
1. (c) 2. (b) 3. (c) 4. (c) 5. (a) 6. (a) 7. (c) 8. (a) 9. (b) 10. (c).

Answer the Following:
Ans 1: The pressure of the air decreases if the speed of the wind is increased.
Ans 2: We can predict about the cyclones in advance by the help of information received from technologies like satellites and radars. Warning for the cyclone is issued 24 hours in advance and for an expected storm, a cyclone alert or a cyclone watch is issued 48 hours in advance.
Ans 3: When the air moves, it is called as wind. Winds are formed due to uneven heating of the earth’s surface.
Ans 4: The centre of the cyclone is the calm area which is called the ‘eye’ of the storm. This area is free of clouds and has light winds.
Ans 5: Tornado is a dark funnel shaped cloud that reaches the ground from the sky. Mostly the tornadoes are weak. They can be form within the cyclones.
Ans 6: In summers, near the equator the land warms up faster and most of the time the temperature of the land is higher than that of water in the oceans. Thus, the air above the land gets heated up and rises upwards and the colder air from the oceans rush in, to take its place. These winds which flow from oceans to land are called monsoon winds. These winds from the oceans carry water with them and cause rain.
Ans 7: When the cycle tube is overfilled with air, pressure inside it become more than the atmospheric pressure outside. So, the air from inside rushes towards outside to equalize the atmospheric pressure and in doing so, the tube may burst.
Ans 8: When air gets heated, it expands and becomes lighter. Due to this, it moves upward. Thus, the strong upward rising winds are produced by the rising temperatures. The water droplets are carried by these winds in the upward direction, where they freeze and fall down. Lightning and sound are created by these movement of the falling water droplets along with the rising air. This phenomenon is known as thunderstorm. Thus, thunderstorms usually occur in hot, humid tropical areas.
Ans 9: Strong winds of the cyclone push the water towards the shore even if the storm is hundreds of kilometres away. Water surface in the centre is lifted by the low pressure of an eye of the storm. The rising water appears like a water wall and it enters the low-lying coastal areas and it causes severe loss of life and damage to property. It reduces the fertility of the soil. The high speed winds damage the houses, telephones and other communication systems, etc.
Ans 10: The poles of the earth are farther away from the sun as compared to the rest of the regions of the earth. They receive minimum heat from the sun. At equator, sunlight falls directly and hence, the regions close to the equator receive maximum heat and so, the poles are colder.
Ans 11: The direction of the wind would have been from north to south or from south to north. The winds would have flown in the north-south direction from north to south, or from south to north. A change in direction is however, caused by the relation of the earth in the direction of wind.
Ans 12: When we blow air into the mouth of the bottle, the air has higher speed near the mouth. Due to this, the air pressure decreases there. The air pressure inside the bottle is higher than that near the mouth. The ball is pushed out by the air inside the bottle. This is why a paper doesn't go inside.

Ans 13: Tropical storms occur in several of the world’s oceans, and except for their names, they are essentially the same type of storm. In the Atlantic Ocean, Gulf of Mexico, and the Eastern Pacific Ocean, they are called hurricanes. In the Western Pacific Ocean, they are called typhoons. In the Indian Ocean, the Bay of Bengal, and Australia, these types of storms are called cyclones.

Ans 14: The precautions to be taken in a cyclone hit area are that one should
(i) not drink contaminated water.
(ii) not touch power lines which have fallen and the switches which are wet.
(iii) not go out for the sake of fun.
(iv) cooperate and help your neighbours.
(v) not make undue demands and pressurise the rescue force with these demands.

Ans 15: Water absorbs heat from the atmosphere to change it into vapour state. When water vapour converts back into liquid state as raindrops, this heat is released to the atmosphere. This heat warms the surrounding air. This warm air tends to rise upward causing a decrease in air pressure. More air rushes to the centre of the storm. This cycle is repeated. A very low-pressure system with very high-speed winds revolving around it is formed. This is called a cyclone.

Value Base Question:
Ans 1: Holes are made in hanging banners and hoardings to protect them from winds by reducing the area.
Pressure, \( P = \frac{F}{A} \) or, \( F = PA \)
Atmospheric pressure remaining constant,
\( F \propto A \)
So, when area is reduced, wind force is also reduced.

Ans 2: (a) Through the satellites and radars cyclone alert is issued 48 hours in advance of actual expected storm and cyclone.
(b) Cyclone warning is issued 24 hours in advance. The message is broadcast every hour or half an hour when a cyclone is nearer the coast.
(c) Several national and international organizations cooperate to monitor the cyclone related disasters.

FORMATIVE ASSESSMENT WORKSHEET-16
Fill in the blanks:
1. wind 2. eye 3. Tornado 4. season 5. anemometer

Correct the following statements by replacing the highlighted word.
1. Warm air is lighter than the cold air.
2. The pressure of the air decreases if the speed of the wind is increased.
3. Cyclones are destructive because they can damage houses, telephones and other communication systems, agriculture, trees etc.
4. The uneven heating of the earth surface is the main cause of wind movement.
5. The overfilled bicycle tube bursts because the pressure inside it becomes more than the atmospheric pressure outside.

Match the following:
1. Indian Subcontinent 2. Philippines / Japan
Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: Soil contains the rotting dead matter called as humus.
Ans 2: A vertical section through different layers of the soil is called the soil profile.
Ans 3: Loamy soil.
Ans 4: Clayey soil.
Ans 5: Soil is the mixture of rock particles and humus.
Ans 6: The process of breaking down of rocks by the action of wind, water and climate is called as weathering.
Ans 7: Wind, rainfall, temperature, light and humidity are the factors which affect the soil.
Ans 8: Availability of nutrients and water in soil helps in determining the productivity of soil.
If nutrients and water are present in large amounts such that soil is considered as more productive soil.
Ans 9: The gravity flow of groundwater through the pore spaces in rock or soil is called percolation of water. It is different in different types of soil. It is highest in the sandy soil and least in the clayey soil.
Ans 10: When the soil sample is heated in a test tube, water droplets are seen on the cooler part of the test tube. This simply shows that soil has moisture, and on heating, this moisture or water changes to water vapours which condenses on the cooler part of the test tube and are seen as water droplets.
Ans 11: The ability of a soil to hold water is called soil moisture. Soil moisture impacts the distribution and growth of vegetation, soil aeration, soil microbial activity, soil erosion, concentration of toxic substances and the movement of nutrients in the soil to the roots, thus affect fertility of soil. For example, clayey and loamy soil both have good water retaining capacity. Crops such as wheat are grown in the fine clayey soils, because they are rich in humus and are very fertile.
Ans 12: The soil is formed by the breaking down of rocks by the action of wind, water and climate. This process is called weathering. There are two different types of weathering: Physical and chemical weathering. The nature of any soil depends upon the rocks from which it has been formed and the type of vegetation that grows in it. Soil formation is the combined effect of physical, chemical, biological and anthropogenic processes on soil parent material and is termed as pedogenesis.
Ans 13: The soil is classified on the basis of the proportion of particles of various sizes.
1. If soil contains greater proportion of big particles, it is called sandy soil.
2. If the proportion of fine particles is relatively higher, then it is called clayey soil.
3. If the amount of large and fine particles is about the same, then the soil is called loamy.
Ans 14: Soil erosion is mainly caused by rain, wind, flooding, overgrazing, and deforestation.
Erosion of soil is more severe in areas of little or no surface vegetation, such as desert or bare lands. The best way to prevent soil erosion is to cover the land by planting more trees and increasing the vegetation cover. The roots of the plants hold the soil firmly and the top layer of soil cannot be carried away by the action of wind or water. Erosion of soil is more severe in areas of little or no surface vegetation, such as desert or bare lands. Cutting of trees and deforestation should be prevented and efforts should be made to increase the green areas.

Ans 15: The climatic factors, as well as the components of soil, determine the various types of vegetation and crops that might grow in any region such as:
Clayey and loamy soils are both suitable for growing cereals like wheat and gram. Such soils are good at retaining water.
For paddy, soils rich in clay and organic matter and having a good capacity to retain water are ideal.
For lentils (masoor) and other pulses, loamy soils, which drain water easily, are required.
For cotton, sandy loam or loam, which drain water easily and can hold plenty of air, are more suitable.
Crops such as wheat are grown in the fine clayey soils, because they are rich in humus and are very fertile.

Ans 16: Different layers are referred to as horizons.
(a) The uppermost layer; the top soil, also called as A-horizon is generally dark in colour and fertile as it is rich in humus and minerals. This layer is generally soft, porous and can retain more water. This provides shelter for many living organisms such as worms, rodents, moles and beetles. The roots of small plants are embedded entirely in the topsoil.
(b) The next layer; middle layer called B-horizon has a lesser amount of humus but more of minerals. This layer is generally harder and more compact.
(c) The third layer is the C-horizon, which is made up of small lumps of rocks with cracks and crevices. Below this layer is the bedrock, which is hard and difficult to dig with a spade. Water can be held in the tiny gaps.

Ans 17: Soil is one of the most important natural resources because
(a) It supports the growth of plants by holding the roots firmly and supplying water and nutrients.
(b) It is the home for many organisms.
(c) Soil is essential for agriculture. Agriculture provides food, clothing and shelter for all.
(d) Soil is thus an inseparable part of our life.

FORMATIVE ASSESSMENT WORKSHEET-18
Give one word:
Label and colour the following diagram:
Humus; water; clay; sand; gravel
Calculate the rate of percolation:
rate of percolation = amount of water/percolation rate
= 300/25 = 12ml/min.
4. Clayey soil.
   1. It is good at retaining water.
   2. It is suitable for growing cereals.

Name the following:
   1. Decomposition
   2. Weathering
   3. Soil Profile
   4. A-horizon
   5. C-horizon
   6. Soil erosion
   7. Percolation rate

Uses of soil:
   (a) It supports the growth of plants by holding the roots firmly.
   (b) It is the home for many organisms.
   (c) Soil is essential for agriculture. Agriculture provides food, clothing and shelter for all.
   (d) Soil is used to make pots; toys and statues.
   (e) It supplies water and nutrients to the plants.
Choose the correct option:

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

Answer the Following:

Ans 1: Soil contain the rotting dead matter called as humus.
Ans 2: When the breakdown of glucose occurs with the help of oxygen, it is called aerobic respiration.
Ans 3: Lactic acid.
Ans 4: Due to the accumulation of lactic acid in the muscles.
Ans 5: The number of times a person breathes in a minute is termed as the breathing rate.
Ans 6: Hot water bath or massage improves circulation of blood. As a result, the supply of oxygen to the muscle cells increases which results in the complete breakdown of lactic acid into CO₂ and water.
Ans 7: The organisms that survive in the absence of oxygen are called anaerobes. In the absence of oxygen, glucose breaks down into alcohol and carbon dioxide.
Ans 8: The taking in of air inside the body which is rich in oxygen is called inhalation and giving out of air rich in carbon dioxide is called exhalation.
Ans 9: The process of breakdown of food in the cell with the release of energy is called Cellular Respiration.
Ans 10: Inhaled air – 21% oxygen and 0.04% carbon dioxide
Exhaled air – 16.4% oxygen and 4.4% carbon dioxide
Ans 11: During heavy exercise our body requires more amount of energy but the oxygen supply required to produce this energy is limited. That’s why our muscle cells respire anaerobically to full fill the demand of energy.
Ans 12: When we inhale, the various unwanted particles such as smoke, dust, pollens, etc. get trapped in the hair present in our nasal cavity. Sometimes these particles may get pass the hair in the nasal cavity. Then they irritate the lining of the cavity, due to which we sneeze.
Ans 13: Gills are projections of the skin. Fishes breathe with the help of gills. A pressurised gulp of water flows from the mouth into a gill chamber on each side of the head. As water flows across the gills, the oxygen within them diffuses into blood. Simultaneously, carbon dioxide in the fish’s bloodstream diffuses into the water and is carried out of the body.
Ans 14: **Aerobic Respiration**

It is the process of breakdown of glucose in the presence of oxygen.
Glucose is completely oxidized.
The end products formed are CO₂, H₂O and energy.
Energy released is more.
It takes place in all higher organisms.
Eg: Human beings

**Anaerobic Respiration**

It is the process of breakdown of glucose in the absence of oxygen.
Glucose is incompletely oxidized.
The end products formed are CO₂, ethyl alcohol and energy.
Energy released is less.
It takes place in lower organisms like yeast and muscles of man.
Eg: Yeast
Ans 15: The process of breathing in humans occurs as follows:
When air is inhaled, it passes through our nostrils into the nasal cavity. With the help of windpipe, the air reaches our lungs from the nasal cavity. Lungs are present in the nasal cavity. This cavity is surrounded by ribs on the sides. A large muscular sheet called diaphragm forms the floor of the chest cavity. During inhalation, the ribs move up and outwards and diaphragm moves down. This occurs due to changes in the volume of lungs due to the movements of the ribcage and diaphragm. This movement causes a fall in the lung pressure due to which air rushes into the lungs. During exhalation, ribs move down and inwards, while diaphragm moves up to its former position. This reduces the size of the chest cavity, thereby increasing the pressure in the lungs and air is pushed out of the lungs.

Ans 16: (a) During respiration, plants take in oxygen from the air and give out carbon dioxide.
(b) In the cells, oxygen is used to break down glucose into carbon dioxide and water.
(c) Each part of the plant is independent to take in oxygen from the air and give out carbon dioxide.
(d) The leaves of the plants have tiny pores called stomata for exchange of oxygen and carbon dioxide.
(e) Like all other living cells of the plants, the root cells also need oxygen to generate energy. Roots take up air from the air spaces present between the soil particles.

Value Based Question:
Ans 1:
(i) Respiratory system/lungs will get affected.
(ii) (a) Factories should treat harmful waste & filter it before releasing it in the environment.
(b) Less polluting fuels like CNG should be used in vehicles.
(c) Regular pollution check and proper service and maintenance should be done for private vehicles.

FORMATIVE ASSESSMENT WORKSHEET-20

Fill in the blanks:
4. Diaphragm  5. breathing

Correct the following statements by replacing words:
1. Lungs are located in the chest cavity:
2. The type of respiration in which food is broken down without the use of oxygen is called anaerobic respiration.
3. Humans are aerobes.
4. Yeast respires anaerobically and yields alcohol.
5. When we feel drowsy, our breathing rate decreases.

Match the following:
1. Carbon Dioxide + water + energy  2. Carbon Dioxide + Alcohol + Energy
3. Lactic acid + Energy  4. 21% Oxygen, 0.04% Carbon Dioxide
5. 16.4% Oxygen, 4.4% Carbon Dioxide

Complete the table: How do they breathe?
1. Earthworm- Moist skin  2. Cockroach- spiracles
3. Frog- lungs and moist skin  4. Leaves- stomata
5. Fish- gills  6. Humans- lungs

Name the following:
1. Anaerobic respiration  2. 16.4  3. 0.04  4. Diaphragm
11 TRANSPORTATION IN ANIMALS AND PLANTS

SUMMATIVE ASSESSMENT WORKSHEET-21

Objective type questions
Choose the correct option:

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

Answer the Following:

Ans 1: Transpiration

Ans 2: Homeostasis includes the physiological processes that allows an organism to maintain its internal equilibrium.

Ans 3: It beats continuously to act as a pump for transporting blood to all body parts. Heart pumps carbon-dioxide rich blood to lungs and oxygen rich blood to rest of the body.

Ans 4: The division of heart into different chambers ensures that there is no intermixing of oxygenated and deoxygenated blood. This ensures a better efficiency of circulation and transportation of oxygen.

Ans 5: Haemoglobin transports oxygen from the lungs to the rest of the body where it releases the oxygen for cell use.

Ans 6: Plants absorb water and minerals from soil by the roots. The root hair absorbs water and dissolved mineral nutrients from the soil. The roots remain in contact with underground water.

Ans 7: Blood is a fluid that flows in our blood vessels. It is red in colour. It carries oxygen, digested food and waste (undigested food) from one part of the body to the other.

Ans 8: There are two types of blood vessels present in our body. They are:
- Arteries: These carry oxygen rich blood from the heart to different parts of the body.
- Veins: These carry carbon dioxide rich blood from different parts of the body back to the heart.

Ans 9: When blood flows in arteries, it gives throbbing to arteries. This throbbing is known as a pulse. The rate of this beat is known as pulse rate. A person has a pulse rate between 72 to 80 beats per minute.

Ans 10: The process of removal of wastes produced in the cells of the living organisms is called excretion.

Ans 11: Blood consists of the following:
- Plasma: The fluid part of blood is known as plasma.
- Red Blood Cells (RBC): These cells contain haemoglobin (a red pigment).
- White Blood Cells (WBC): These cells protect us from germs and kill them.
- Platelets: These cells work after an injury on body to prevent blood loss.

Ans 12: Heart acts as a pump for the transportation of blood. The heart has four chambers. Upper chambers are known as atria and lower chambers are known as ventricles. There is a partition between the chambers to avoid mixing up of oxygen rich blood and carbon dioxide rich blood.

Ans 13: The excretory system consists of kidneys, ureters, bladder and urethra. The impure blood is filtered through blood capillaries in the kidneys. The wastes dissolved in water are removed as urine. It is carried to urinary bladder through ureters and is stored there. It passes out through the body through an opening called urethra.
Ans 14: A heartbeat is a rhythmic wave of contraction and relaxation of cardiac muscles of heart. It pumps the blood to the various body parts.

Ans 15: Arteries and veins are joined by a network of capillaries which supply blood to every part of human body. Arteries carry oxygen rich blood towards body organs. On reaching the tissues, they divide again to form extremely thin tubes called capillaries, so that oxygen can be easily taken up by tissues. When these capillaries leave the tissues they take carbon dioxide rich blood of tissues and join to form veins. These veins take this blood to the heart. Thus, capillaries form a network to join arteries and veins.

Ans 16: (a) Transpiration is important because:
   (i) It is responsible for uptake of water from the soil to the top of the plants.
   (ii) It is responsible for movement of water and dissolved minerals from the roots to different parts of the plant.
   (iii) It results in cooling of the plant body.
   (b) The evaporation of water from leaves generates a suction pull, which pulls the water to great heights in tall trees.
   (c) In desert plants, the leaves are modified into spines to reduce the number of stomata and therefore preventing the loss of water by transpiration.

Value Based Question:
Ans 1: (i) Prefer and enjoy eating fruits and vegetables.
   (ii) Choose a diet that provide enough calcium and iron and proteins to meet their growing body’s requirements.
   (iii) Add fresh vegetables to pizzas, burger, if you can’t avoid eating them.

Associated Value: The learners will go for healthy food habit once they understand the harms of taking junk food.
Match the following:

1. Haemoglobin  
2. White Blood Cells  
3. Phloem  
4. Xylem  
5. Platelets.

Correct the following sentences by replacing the words.

a) Veins are the vessels which carry carbon dioxide rich blood from all parts of the body back to the heart.

b) Arteries carry oxygen-rich blood from the heart to all parts of the body.

c) Urea is the main excretory product of human being.

d) Ammonia is the main excretory product of fishes.

e) Uric acid is the main excretory product of birds, lizards etc.

Label the following Diagram:

(Students should label themselves)

Observe the given diagram and name the process.

Ans: Process — Transpiration

Name the following:

1. Blood
2. Haemoglobin
3. White Blood Cells
4. Arteries and veins
5. Atrium
6. Xylem and Phloem

II
Objective type questions
Choose the correct option:
1. (a)  2. (a)  3. (c)  4. (b)  5. (b)  6. (a)  7. (d)  8. (a)  9. (a)  10. (c).

Answer the Following:
Ans 1: The production of new individuals from their parents is known as reproduction.
Ans 2: They help in reproduction in plants.
Ans 3: Vegetative, asexual and sexual.
Ans 4: Fruit is the mature ovary whereas ovule develops into a seed, which contains the developing embryo.
Ans 5: The process of fusion of male and female gametes to form a zygote is called fertilisation.
Ans 6: In asexual reproduction plants can give rise to new plants without seeds, whereas in sexual reproduction, new plants are obtained from seeds.
Ans 7: Types of pollination:
   1. Self pollination—Transfer of pollen occurs in the same flower.
   2. Cross pollination—Pollen is transferred from one flower to another flower of the same plant or different plant but of same species.
Ans 8: The transfer of pollen from the another to the stigma of a flower is called pollination. Self pollination and cross pollination are the two types of pollination.
Ans 9: Seed dispersal leads to scattering of seeds to varied places. If all the seeds of a plant fall at the same place and start growing, there will be severe competition for space, sunlight, water, minerals and nutrients. As a result the seeds would not grow into healthy plants. Seed dispersal enables the plants to invade new habitats for wider distribution.
Ans 10: The spores are asexual reproductive bodies. Each spore is covered by a hard protective coat to withstand unfavourable conditions such as high temperature and low humidity. So they can survive for a long time. Under favourable conditions, a spore germinates and develops into a new individual.
Ans 11: The arrangement of veins in a leaf is called the leaf venation.
   Reticulate Venation: In this the veins form a network like structure
   Parallel venation: In this the veins run parallel to each other
Ans 12: (i) Seed dispersed through air have winged structure and are very light in weight, so that they can be blown off with the wind to faraway places. Example: Drumsticks and Maple.
   (ii) Seeds dispersed by water usually develop floating ability in the form of spongy tissue. Example: Coconut and Water lily.
   (iii) Seeds which are dispersed by animals have rough, spiny structure with hooks which gets attached to the bodies of animals. Example: Xanthium and Urena.
Ans 13:

The flowers which contain either pistil or stamens are called unisexual flowers. *E.g.* Corn, papaya and cucumber.
The flowers which contain both stamens and pistil are called bisexual flowers. *E.g.* Mustard, rose and petunia.

Ans 14:  The flowers which contain either pistil or stamens are called unisexual flowers. *E.g.* Corn, papaya and cucumber.
The flowers which contain both stamens and pistil are called bisexual flowers. *E.g.* Mustard, rose and petunia.

Ans 15:

Fruit is the mature ovary. Ovule develops into a seed which contains the developing embryo.
Seed dispersal helps the plants to:
(i) Prevent overcrowding  (ii) Avoid competition for sunlight, water and minerals
(iii) Invade new habitats.

Ans 16: (a) *Spirogyra* (an alga) multiplies vegetatively by fragmentation. The algae grows rapidly in presence of water and nutrients. An algal filament breaks up into two or more fragments. These fragments or pieces grow into new individuals. This process continues and they cover a large area in a short period of time.
(b) Sporogenesis refers to the process of reproduction through spores. It occurs in reproductive structures known as sporangia which produce spores. Example: Moss and ferns.

(c) *Hydra* and yeast reproduce by the process of budding, where a new organism forms eventually and breaks away from the parent body.

**Value Based Question**

**Ans 1:** Advantages of vegetatively propagated plants are:
These plants take less time to grow and bear flowers and fruits earlier than the plants produced from seeds.
The new plants are exact copies of the parent plant as they are produced from a single parent.

**FORMATIVE ASSESSMENT WORKSHEET-24**

**Fill in the blanks:**
1. Reproduction  
2. bisexual  
3. pollination  
4. Flower  
5. vegetative

**Match the following:**
1. Winged seeds  
2. Sari  
3. Buds in the margin of leaves.  
4. Eyes  
5. Budding  
6. Stem Cuttings  
7. Spiny seeds  
8. Hairy seeds.

**Write the correct word:**
1. Anther  
2. Ovary

**Name the following:**
1. Eyes  
2. Bud  
3. Pollination  
4. Zygote  
5. Fruit  
6. Pistil (Gynoecium)

1. Budding in yeast  
2. Vegetative propagation in Bryophyllum  
3. Reproduction by spores in Rhizopus  
4. Fragmentation in spirogyra
SUMMATIVE ASSESSMENT WORKSHEET-25

Objective type questions
Choose the correct option:

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

Answer the Following:

Ans 1: The distance moved by an object in a unit time is called its speed.
Ans 2: If the speed of an object keeps changing in equal intervals of time while moving along a straight line, its motion is said to be non-uniform.
Ans 3: The metallic ball of the simple pendulum is called the bob of the pendulum.
Ans 4: When an object repeats its motion after a fixed interval of time, its motion is called periodic motion.
Ans 5: The time taken by a simple pendulum to complete one oscillation is called its time period.
Ans 6: Odometer is used in a vehicle to measure distance covered by the vehicle in kilometres.
Ans 7: Distance travelled = speed × time
Distance travelled by the car = 5 × 3 = 15 km
Ans 8: Speed = distance travelled / time
Speed of the train = 240 km / 6 h = 40 km / h
Ans 9: On a see-saw, child goes up and comes down. The motion is repeated to and fro about its mean position. So, it is an oscillatory motion.
Ans 10: The nature of the distance-time graph for the motion of an object moving with a constant speed is a straight line.
Ans 11: A day was measured as the time between one sunrise and the next. The time between one new moon to the next was called a month. The time taken by the earth to complete one revolution around the sun was called a year.
Ans 12: The three positions of the bob of the pendulum are as shown. Position ‘O’ is the mean position of the bob. The position ‘A’ and ‘B’ are extreme positions of the bob. The pendulum completes one oscillation when the bob moves from one extreme position to other by passing through mean position, i.e., one oscillation means when the bob moves from O to B to O to A and then back to O.

Ans 13: Time taken = 20 minutes = 20 × 60 seconds = 1200 seconds  Speed = 2 m/s
Distance = speed × time = (2 × 1200) m = 2400 m  Or; distance = 2.4 km
Ans 14: The points that should be kept in mind while choosing most convenient scale for drawing a graph are:
(a) The difference between the highest and the lowest values of the quantities which are taken along X-axis and Y-axis in a graph.
(b) The intermediate values of each quantity in order to conveniently mark the values on the graph.

(c) Maximum part of the paper must be utilised on which the graph is to be made.

**Ans 15:** When an object covers equal distances in equal intervals of time then, it is said to be in uniform motion.

**For example:** If a car covers 100 km every hour, 50 km every half an hour, 25 km every quarter of an hour and so on, then its motion is said to be uniform.

Speed of the truck = 60 km/h

Time taken by the car = 30 min.

\[ \text{Time taken} = \frac{1}{60} \times 30 \text{ min.} = \frac{1}{2} \text{ h} \]

\[ \text{Speed} = \frac{\text{Distance Covered}}{\text{Time Taken}} \]

\[ \text{Distance Covered} = \text{Speed} \times \text{time taken} \]

\[ = 60 \text{ km/h} \times \frac{1}{2} \text{ h} = 30 \text{ km.} \]

Therefore, the truck covered a total distance of 30 km.

**Ans 16:** Speed of the car = 80 km/h

Time taken by the car = 15 min.

\[ \text{Time taken} = \frac{1}{60} \times 15 \text{ min.} = \frac{1}{4} \text{ h} \]

\[ \text{Speed} = \frac{\text{Distance Covered}}{\text{Time Taken}} \]

\[ \text{Distance Covered} = \text{Speed} \times \text{time taken} \]

\[ = 80 \text{ km/h} \times \frac{1}{4} \text{ h} = 20 \text{ km.} \]

\[ \text{Time Taken} = \frac{\text{Distance Covered}}{\text{Speed}} \]

Time taken to cover 20 km. at a speed of 40 km/h = \( \frac{20}{40} = \frac{1}{2} \text{ h} \)

Therefore, the car will take 30 minutes to cover the same distance at a speed of 40 km/h.

**Ans 17:** 1. (a) A bus moving with constant speed
(b) A car parked on side road.

(c) A car moving with non-uniform speed.

2. Motion of bob in pendulum clock.
   Motion of a child on swing.

**FORMATIVE ASSESSMENT WORKSHEET-26**

second < minute < hour < day < month < year
Speed = $\frac{300}{45} = 6.66$ m/s
Time Period = $\frac{20}{10} = 2$ sec.

**Name the type of motion:**
1. Rectilinear Motion 2. Rectilinear Motion
3. Periodic Motion 4. Periodic Motion
5. Periodic Motion 6. Oscillatory Motion
7. Oscillatory Motion 8. Periodic Motion
9. Rotatory Motion 10. Circular Motion

**Name the Following:**
1. Speed 2. Uniform Motion
3. Second 4. Quartz watches
5. Metal Bob 6. Sundial and Sand Clock
7. Speedometre 8. Odometre
9. Straight line graph 10. Time Period
## Objective type questions

Choose the correct option:

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

Answer the Following:

**Ans 1:** When an electric current is passed through the wire, it gets heated up due to heating effect of an electric current.

**Ans 2:** In the symbol of an electric cell, there is a longer line followed by a shorter and thicker line. The longer line represents the positive terminal of an electric cell.

**Ans 3:** When an electric current passes through a wire, it gets heated up. This is called the heating effect of an electric current.

**Ans 4:** On passing an electric current through the filament of an electric bulb, it gets heated to a high temperature due to which it starts glowing. This is due to the heating effect of an electric current.

**Ans 5:** Miniature circuit breakers (MCBs) are the switches which automatically switch off when an electric current in a circuit exceeds the maximum limit. On turning them ‘on’, the circuit gets complete and thus, the current can flow through it.

**Ans 6:** Battery is the combination of many cells.

**Ans 7:** Compass needle is a tiny magnet which points in the north-south direction. When a magnet is brought near a compass needle, it gets deflected showing the presence of the magnet.

**Ans 8:** The wire behaves like a magnet whenever an electric current passes through a wire. This is called the magnetic effect of the electric current. So, an electric current can be used to make magnets.

**Ans 9:** A battery of two cells can be made by connecting the negative terminal of the first cell to the positive terminal of the second cell which is just next to it through a thick wire or a metal strip.

**Ans 10:** An open circuit. When the switch is in ‘Off’ position, the circuit is called an open circuit. An open circuit is an incomplete circuit. No current flows in an open circuit and thus, the bulb in the circuit will not glow.

**Closed circuit.** When the switch is in ‘On’ position, the circuit is called a closed circuit. Closed circuit is a complete circuit. Current flows in a closed circuit and thus, the bulb in the circuit will glow.

**Ans 11:** An electric fuse is a safety device which is used to prevent damages to electric circuits. It contains a wire made up of a material having low melting point.

**Ans 12:** A current carrying coil of an insulated wire wrapped around a piece of an iron is called an electromagnet. When the current is switched off, the coil loses its magnetism. Strong electromagnets can be made. Strong electromagnets are used at the end of the crane to lift very heavy loads.

**Ans 13:** No, it is not safe to replace a fuse by a piece of wire. Fuses are made of special wires which quickly melts and break the circuit when excess current flows through it. Thus, it is a safety device that prevents damages to electrical circuits.
Ans 14: An electric fuse contains a wire made up of a material having low melting point so that if large current passes through it, then the heat will be generated due to heating effect of an electric current, which melts the wire and breaks the circuit. Hence, the damage to the electrical appliances and possible wires can be prevented.

Ans 15: In the given circuit, the positive terminal of the battery is connected with one terminal of Bulb A, while another terminal of the Bulb A is connected with one terminal of Bulb B. The other terminal of Bulb B is connected with the negative terminal of the battery.

Based on the above information, the circuit diagram is:

![Circuit Diagram]

Ans 16: An electric heater is a device that converts electric energy into heat energy. It is based on the principle of heating effect of electric current.

An electric bulb is also based on the same principle, i.e., heating effect of electric current.

In case of an electric bulb, the element gets heated to such a high temperature that it begins to glow while the element of an electric heater does not get heated to such high temperature and so, it does not glow like an electric bulb.

Value Based Question:

Ans 1: No, it is not acceptable. It will affect the economical condition of family as well as the nation because mostly non-renewable sources of energy is used to generate large amount of electricity. We should conserve the energy.
Fill in the blanks:
1. battery  
2. element  
3. electromagnet  
4. Hans Christian Oersted  
5. Heating

Match the following:
1. Miniature Circuit Breaker  
2. Bureau of Indian Standards  
3. Bureau of Indian Standards  
4. Nichrome  
5. Tungsten.

Uses of electromagnet:
1. They are used in cranes to lift heavy loads containing metals.
2. They are used by doctors to cure certain diseases.
3. They are used in loud speakers.

Name the Following:
1. Fuse  
2. Magnetic effect of electric current (Electromagnetism)  
3. ISI mark  
4. Filament  
5. Electrode  
6. Negative Terminal  
7. Heating effect of electric current.
**SUMMATIVE ASSESSMENT WORKSHEET-29**

**Objective type questions**

Choose the correct option:

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

Answer the Following:

**Ans 1:** An image which can be obtained on a screen is called a real image.

**Ans 2:** An image which cannot be obtained on a screen is called a virtual image.

**Ans 3:** The lens which is thinner in the middle and thicker at the edges is called a concave lens. It is also called diverging lens.

**Ans 4:** The lens which is thicker at the middle and thinner at the edges is called a convex lens. It is also called converging lens.

**Ans 5:** Concave Lens.

**Ans 6:** We can’t see the flame of a candle through a bent pipe because light always travels along a straight line.

**Ans 7:** We should allow the ambulance to pass without blocking its way as the ambulance carries patients.

**Ans 8:** When light falls on a shiny or a polished surface, then light changes its direction into the same medium. This is called reflection of light.

**Ans 9:** The characteristics of the image formed by a concave lens are as follows:
   (a) It is erect.  (b) It is virtual.  (c) It is smaller in size.

**Ans 10:** Convex mirrors are used as side mirrors in scooters and cars. Convex mirrors can form images of the objects spread over a large area. Also an image formed by a convex mirror is erect, virtual and smaller in size. These help drivers to see traffic behind them.

**Ans 11:** Mirrors are of two types plane mirror and spherical mirrors.
   Spherical mirrors are of two types: Concave mirror and Convex mirror.

**Ans 12:** Image formed by convex mirror is virtual, erect and is smaller than the object, in size.

**Ans 13:** The image obtained by plane mirror is always erect, have same size as that of object, equidistant from mirror as the object and is laterally inverted.

**Ans 14:** **Concave Mirror:** When in a spherical mirror, the reflecting surface is the inward surface and the polished surface is bulged out surface, then the spherical mirror is called concave mirror. It forms real and inverted image.

**Convex mirror:** When in a spherical mirror, the reflecting surface is the bulged out surface and the inward surface is polished, then the spherical mirror is called concave mirror. It forms virtual and erect image.

**Plane Mirror:** Plane mirror forms virtual; erect and same sized image.

**Ans 15:** The rainbow is seen as a large arc in the sky with many colours. It generally appears in the sky after the rain. When rain falls, then light from the sun is dispersed through rain drops into different colours and rainbow appears. There are seven colours in a rainbow. They are Violet, Indigo, Blue, Green, Yellow, Orange, and Red

**Ans 16:** Newton’s disc is a disc consisting of seven equal parts filled with the seven colours of
the rainbow, which when rotated gives white colour.

**Procedure to make Newton’s disc:** We take a circular disc. We divide this disc into seven equal parts and fill them with seven colours of rainbow. We rotate the disc. When the disc is rotated fast, the colours get mixed together and the disc appears to be whitish. Such a disc is known as Newton’s disc after the name of the scientist who discovered it.

**Value Based Question:**

**Ans 1:**
1. Don’t Rub eyes.
2. Wash them properly and softly.
3. Get your eyes checked regularly by doctors.

**FORMATIVE ASSESSMENT WORKSHEET-30**

**Fill in the blanks:**

1. straight  
2. virtual  
3. plane  
4. real  
5. convex

1. Concave Mirror  
2. Concave Lens  
3. Convex Lens  
4. Convex Mirror  

**Uses of Concave Mirror:**

1. It is used as shaving mirror.  
2. It is used by dentists while examining a patient.

**Uses of Convex Mirror:**

1. It is used as near view mirror in automobiles.  
2. It is used in Microscope; Telescope; Spectacles etc.

1. Virtual and erect  
2. Real and inverted  
3. Real and inverted  
4. Virtual and erect

**Name the following:**

1. Virtual and erect  
2. Concave mirror  
3. Enlarged  
4. VIBGYOR  
5. White light  
6. Lateral inversion  
7. Reflection  
8. Rectilinear Proportion  
9. Spherical mirror  
10. Concave Mirror
SUMMATIVE ASSESSMENT WORKSHEET-31

Objective type questions
Choose the correct option:
1. (d)  2. (b)  3. (a)  4. (d)  5. (b)  6. (b)  7. (c)  8. (a)  9. (a)  10. (d).

Answer the Following:
Ans 1: The underground water, bearing layer of the earth, which is below the water table is known as an aquifer.
Ans 2: Water management is a practice to minimize wastage of water.
Ans 3: Drip Irrigation is a technique of using narrow tubes to provide water to plants directly at their base. This helps in conservation of water.
Ans 4: The water present on the surface of the earth is known as surface water. The main sources are rain, rivers, lakes, and sea.
Ans 5: Infiltration is the process of seeping of water into the empty spaces of ground.
Ans 6: Collection and conservation of rainwater from the rooftop of buildings and industries is known as rainwater harvesting. This collected water can be used directly or can be put into the soil for irrigation. This process leads to rise in water table.
Ans 7: Water is the most essential source for life on the earth. All the metabolic activities of living beings are carried out with water. Water provides habitat to several animals and plants. Hence, no living organism can survive without water.
Ans 8: Underground water is present inside the earth. Water from rain and other sources of surface water moves inside the earth to fill the empty spaces and cracks. This water found below the water table is called underground water.
Ans 9: Sometimes, the water which is collected above the rocks gets pressurised. It comes out from any opening in the earth in the form of spring. This is known as spring water.
Ans 10: The two water-wise habits are:
1. Mopping floor instead of washing.
2. Washing vehicles using bucket.
Ans 11: We can conserve water by:
1. Minimizing the wastage in houses and industries.
2. By harvesting rain water.
3. Using drip irrigation techniques in agriculture.
Ans 12: Factors that disturb water table are:
(a) Low or no rainfall
(b) Agricultural activities
(c) Increase in population
Ans 13: (a) During summers, when the temperature is high, plants transpire more to keep themselves cool. So, more transpiration occurs and uptake of water increases. The transpiration pull exerts more pressure on the roots and it pull out water from the soil.
(b) Water exists in all the three forms of matter. Water exists as ice in solid state, as liquid water in liquid state and in the form of water vapour in gaseous state.
Ans 14: Reasons for water scarcity are as follows:

**Increasing population.** Due to increasing population, the demand of water is increasing. Construction of houses, roads, shops etc. requires a large amount of water.

**Increasing industries.** The number of industries are increasing continuously. A lot of ground water is used by these industries resulting in the shortage of water.

**Uneven distribution of water.** Rainfall does not occur in every region of the earth. Some places receive plenty of rainfall while others do not receive any rain.

**Agricultural activities.** In India, farmers totally depend on rain for irrigation. Irrigation system like canals are not available everywhere so farmers use ground water as their only alternative.

Ans 15: The rainwater, seeping into the earth, maintains the water table in the earth. This process is known as replenishment of water table. Factors that disturb water table are:

(1) Low or no rainfall.  
(2) Increase in population  
(3) Industrial activities  
(4) Agricultural activities

Value Base Question:

Ans 1: The effect on the water table depends on the replenishment of the underground water. Only 5 families are sharing a single hand pump for domestic purpose. It will not affect water table. But, in case there is scarcity of rain then the water, once, used by the families, would not be replenished and water table will fall down.

Ans 2: (i) Repair leaking taps immediately.  
(ii) When washing the car, use water from a bucket and not from a hosepipe.  
(iii) Do not throw away water that has been used for washing vegetables, rice etc.  
(iv) Rain water harvesting.  
(v) Do not leave the tap running while you are brushing your teeth or soaping your face.  
(vi) Don't use shower too often for bathing.

**FORMATIVE ASSESSMENT WORKSHEET-32**

**Fill in the blanks:**

1. Water  
2. 70  
3. Khadin  
4. solid; liquid and gas  
5. wastage

**State whether True or False:**

1. True  
2. True  
3. False  
4. False  
5. True

**Write some methods to conserve water at home:**

1. Mopping floor instead of washing.  
2. Washing vehicles using bucket.  
3. When washing the car, use water from a bucket and not from a hosepipe.  
4. Do not throw away water that has been used for washing vegetables, rice etc.  
5. Rain water harvesting.  
6. Do not leave the tap running while you are brushing your teeth or soaping your face.  
7. Don't use shower too often for bathing.

**Match the given numbers with the processes given in the jumbled form:**

1. Solar energy  
2. Clouds  
3. Evaporation  
4. Precipitation  
5. sea water

**Name the Following:**

1. Infiltration  
2. Water Table  
3. Drip Irrigation  
4. Aqifer  
5. Water Cycle

SOLUTIONS
Forests: Our lifeline

Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: Forests serve as green lungs and water purifying systems in nature.

Ans 2: Sal, Teak, Semal, Sheesham, Neem, Palash, Khair are some examples of plants that are found in forests.

Ans 3: The branchy part of a tree above the stem is known as the crown of the tree.

Ans 4: Microorganisms feed upon the dead plants and animal tissues and convert them into a dark coloured substance called humus.

Ans 5: Plants are the primary source of food for them.

Ans 6: Autotrophs are the plants preparing their own food by the process of the photosynthesis. Heterotrophs are animals totally dependent on plants for their food.

Ans 7: Plants releases oxygen through the process of photosynthesis and help in providing oxygen to animals for respiration. Thus forests are called “Green Lungs”.

Ans 8: Green plants prepare their own food with the help of sunlight, water and carbon dioxide by the process of photosynthesis.

Ans 9: A Food chain is an order which explains us the consumption of plants and small animals by bigger animals or by human beings. For example:

Grass $\rightarrow$ Insects $\rightarrow$ Frog $\rightarrow$ Snake $\rightarrow$ Eagle.

Ans 10: Raindrops in a forest do not hit the ground directly. The uppermost layer of the forest canopy intercepts the flow of raindrops and most of the water comes down through the branches and the stems of the trees. From the leaves it drops slowly on the branches of herbs and shrubs. Thus, a forest act as a natural absorber of rain water and allows it to seep and help in controlling runoff water.

Ans 11: It is because rain drops do not hit forest floor directly. First, it falls on canopies of trees then it comes down through branches and leaves. After that it falls down on shrubs and herbs. So water does not accumulate on forest floor immediately. Forest also acts as natural absorber of rainwater.

Ans 12: Plants release a lot of water to environment by transpiration and they are also responsible for water cycle. With increased rate of deforestation, evaporation of water through plants decreases which is affecting water cycle resulting, into less rainfall.

Ans 13: Decomposers are the organisms which convert the dead plants and animals to humus. Examples are bacteria, tiny insects, millipedes, earthworms, ants etc. Decomposers play an important role in maintaining the balance by the supply of nutrients to the growing plants after decomposing the dead plants and animals into humus.

Ans 14: The plants release oxygen through the process of photosynthesis. Animals require oxygen for respiration and release carbon dioxide to the environment. This carbon dioxide is again absorbed by the plants in the process of photosynthesis. Thus, plants help in maintaining the balance of oxygen and carbon dioxide in the atmosphere.

Ans 15: If forest will disappear from earth then following things may happen:
1. Amount of carbon dioxide will increase which in turn will increase earth’s temperature.
2. If there will be no trees and plants, the animals will not get food and shelter as forest is a natural habitat for them.
3. When there will be no trees then soil will flow down into the rivers and this will cause floods at higher rates.
4. It will also endanger our life as there will be polluted air with less or no oxygen.

**Value Based Question:**

**Ans 1:**
1. Growing plants and trees in the open area in the school.
2. Arrangement for water harvesting
3. Reporting any kind of water leakage in the school.

**Ans 2:** Forest is known as a “Dynamic living entity” i.e., full of vitality and life because of the following reasons:
1. As there are different varieties of plants in forest, it provides greater opportunity for food and habitat for the herbivores.
2. As there are large number of herbivores in forest, they increase the availability of food for a large number of carnivores.
3. Decomposers help in maintaining the supply of nutrients to the growing plants in the forests.
Thus life starts from plants, moves to herbivores then carnivores and in the end decomposers decompose the dead and decay material into the nutrients that plants use from the soil.

**FORMATIVE ASSESSMENT WORKSHEET-34**

1. Gum
2. Wood
3. Sealing Wax
4. Honey
5. Catechu (or any other)

**Ans:** In the absence of trees and plants the animals will not get food and shelter. If forest will disappear the amount of carbon dioxide will increase which results in increasing earth’s temperature. In the absence of trees the soil will not hold water which will cause flood.

**Fill in the Blanks:**
1. Forest Department
2. decomposers
3. Forests
4. Canopy
5. herbs; shrubs and trees

1. Teak
2. Sal
3. Neem
4. Sheesham
Objective type questions

Choose the correct option:

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

Answer the Following:

Ans 1: Rich in lather, mixed with oil, black-brown water that goes down the drains from sinks, showers, toilets, laundries is dirty and called wastewater.

Ans 2: Skimmer is used to remove floatable solids like oils and grease from the waste water.

Ans 3: The soluble and suspended impurities in the sewage are known as contaminants.

Ans 4: Sewerage is a transport system that carries sewage from the point it is produced to the point of disposal.

Ans 5: Vermi-compost is the end-product of the breakdown of organic matter by some species of earthworm. It is a nutrient-rich organic fertilizer.

Ans 6: The solid wastes which are collected from the waste water during the treatment in water treatment plant are called sludge. The sludge is decomposed by the anaerobic bacteria in a separate tank. During this process, biogas is produced which is used as fuel or to produce electricity. Dried sludge is used as manure.

Ans 7: Sewerage system is a transport system that carries sewage from the point of being produced to the point of disposal that is the water treatment plant.

Ans 8: Open drains and unsanitary conditions produce bad smell. It is a breeding place for flies, mosquitoes and other harmful insects. These insects spread many diseases and other health hazards.

Ans 9: Heavy rains are the actual cause of flood which leads to rise in water level of rivers and lakes that flow onto the dry land. Flood cause extensive damage of property and life.

Ans 10: Open drains and unsanitary conditions produce bad smell. It is a breeding place for flies, mosquitoes and other harmful insects. These insects spread many diseases and other health hazards.

Ans 11: The floatable solids like oil, grease etc. are removed from the sludge by skimmer. The water, so obtained, is known as clarified water. The clarified water is, further, cleaned by aerobic bacteria.

Ans 12: Uses of treated waste water:
- It can be used for watering gardens, washing cars, and landscaping alongside public roads, etc.
- A lot of water is needed to cool power-generation equipment, and treated wastewater can be used for these purposes

Ans 13: A liquid, containing wastes disposed of by household, agricultural and industrial activities in water, is known as sewage.
- Untreated sewage contains harmful substances and disease causing organisms. Hence, it is dangerous and unsafe to discharge untreated sewage in water. It can pollute the whole source of water.

Ans 14: Sanitation and disease are related to each other. If sanitation is there, the probability of diseases will be low. But, if there is no sanitation, various types of diseases will occur and spread. So, to avoid diseases, proper sanitation should be maintained.
Ans 15: Kitchen wastes contain oil and fats which are insoluble in water. They can harden and block the pipes. In open drains, the fats clog the pores of soil and decrease the filtration of water. Wastes like solid food remains choke the pipes and reduces the decomposition by the aerobic bacteria.

Ans 16: Purification of water involves the following steps:
1. Water is treated physically, chemically and biologically in wastewater treatment plant. In the first stage, all the physical impurities like plastic bags, stones, cans etc. are removed by using bar screens.
2. Then water is passed through grit and sand removal tank where impurities are removed by sedimentation.
3. Solid impurities are collected from the bottom of the water. The collected solid waste is known as sludge. The floatable solids like oils, grease etc. are removed by skimmer. The clear water so obtained is called clarified water.
4. Clarified water is further purified by aerator. All disease causing bacteria are removed by chlorination and then, water is released in various water bodies.

Value Base Question:
Ans 1: Untreated excreta pollute soil, air and water. The polluted water consists of disease causing bacteria which can spread epidemics such as meningitis, typhoid, etc. So, untreated excreta can cause a lot of health related problems.

Ans 2: We can improve sanitation conditions of an area as follows:
1. We should take care of personal and environmental sanitation.
2. Low cost onsite sewage disposal systems like septic tanks, chemical tanks, etc. should be built where there is no sewage system.
3. People should be made aware of the benefits of sanitation.
4. We should keep our surroundings clean.
5. We should help the municipal corporation or gram panchayat to cover all the open drains and remove the unhygienic as well as disease causing substances thrown in open.

FORMATIVE ASSESSMENT WORKSHEET-36

Fill in the blanks:
4. Eucalyptus  5. Wastewater

Identify the following statements as “Do’s and Don’ts” for better housekeeping practice:
1. Don’ts  2. Do’s  3. Don’ts  4. Do’s

Give one word:

Ans: 1. Cooking oil and fats should not be thrown down the drain.
2. Do not throw chemicals in the drain.
3. Used tea leaves; solid food remains should be thrown in the dustbin.

Ans: 1. Low cost onsite sewage disposal system are being encouraged.
2. Septic tanks should be made on those places where there is no sewerage system.
3. Composting pits and chemical toilets should be made.