Solutions to
Me 'n' Mine
Science
PULLOUT WORKSHEETS
Answers of 1 and 2 marks questions along with formative assessment
FOR CLASS VIII
By
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CHAPTER – 1 (CROP PRODUCTION AND MANAGEMENT)

WORKSHEET – 1

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Soil contains minerals, water, air and some living organisms. In addition, dead plants and animals get decomposed by soil organisms.
2. Leveller is used for levelling of soil.
3. The plough, hoe and cultivator are the main tools which are used for breaking the soil before sowing the seeds.
4. Paddy requires a lot of water. Therefore, it is grown only in the rainy season not in winter season.

WORKSHEET – 2

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Khurpi is a simple instrument which is used for farming or cultivating of crops by a farmer.
2. Good quality of seeds are clean and healthy seeds of a good variety.
3. Hoe is a simple tool which is used for removing weeds and for loosening the soil.
4. Silos are the places where large storage of grains is done to protect them from pests like rats and insects.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. The ploughed field may have big pieces of soil, called crumbs. These crumbs should be broken with a plank for levelling the field for sowing as well as for irrigation purposes. As a result, high amount of crops is produced.
2. Plough is a tool used for breaking the soil to the size of grains for getting better yield. It contains a strong triangular iron strip called ploughshare.
   The main part of the plough is a long log of wood which is called ploughshaft.
3. The process of loosening and turning of the soil is called tilling or ploughing.
   Tilling process is done by using a plough.
4. The supply of water to crops at different intervals is called irrigation.
   There are two main modern methods of irrigation which help us to use water economically. These are known as sprinkler system and drip system, respectively.
5. The organic manure is considered better than fertilisers. Two advantages of manures are given below:
   (i) They enhance the water holding capacity of the soil.
   (ii) They make the soil porous due to which exchange of gases become easy.
6. Weeds are also controlled by using certain chemicals, called weedicides. The 2, 4-D is a kind of weedicide.
   Weedicides are sprayed in the fields to kill the weeds. They do not damage the crops.
7. (a) — (iii)  
   (b) — (ii)  
   (c) — (iv)  
   (d) — (i).

8. Two examples of Kharif crops are: soyabean, cotton.  
Two examples of Rabi crops are: mustard, linseed.

9. The process of separation of grains from the harvested crops is called **threshing**. This is carried out with the help of machine called ‘Combine’.  
The process of separation of grains from the chaff is called **winnowing**.

10. (a) Assam  
     (b) Kharif  
     (c) Summer  
     (d) Rabi.

---

**WORKSHEET – 6 (FORMATIVE ASSESSMENT)**

**MCQs**

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

**DO AS DIRECTED**

1. Sowing  
   2. Weedicide  
   3. Inorganic  
   4. F  
   5. T  
   6. T.

**ANALOGY TYPE QUESTIONS**

1. Harvesting  
   2. Harvest festival  
   3. Factories, fields  
   4. June to September  
   5. Soyabean.

**ONE WORDS SUBSTITUTION**

1. Tilling or ploughing  
   2. Manure  
   3. Fertiliser  
   4. Animal husbandry  
   5. Vitamin D.

**DOUBLE MATCHING**

(A) — (c) — (iii), (B) — (a) — (ii), (C) — (b) — (i)

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**CHAPTER – 2 (MICROORGANISMS: FRIEND AND FOE)**

**WORKSHEET – 7**

**MCQs**

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

8. (b)  
   9. (d)  
   10. (d).
**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. The microbial diseases that can spread from an infected person to a healthy person through air, water, food or physical contact are called **communicable diseases**.
2. When a dangerous microbe enters in our healthy body, the body produces antibodies that fight to microbes of a particular disease in a body.
3. The spoilage of pickles can be preserved by using oil and vinegar.
4. Jams, jellies and squashes are preserved by sugar from spoilage.
5. Salts and edible oils are the common chemicals generally used to check the growth of microorganisms. Therefore, they are called preservatives.
6. People should always drink boiled water and should also take vaccination at fixed interval of time for preventing from hepatities B.
7. The microorganisms that are used for making useful edible things, *i.e.*, curd, bread and cake, are called **friendly microorganisms**.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. As we know, both diseases, *i.e.*, cholera and typhoid, are caused by bacteria. To prevent ourselves from these diseases, we should maintain personal hygiene and good sanitary habits, eat properly cooked food and drink boiled water. Along with these precautions, we should also take vaccination at fixed interval of time.
2. We should use dry salt to stop and check the active microbes like bacteria. As a result, we get fresh meat and fish for a long time.
   Dry fruits and vegetables are kept in sealed airtight packets by shopkeeper for preventing from the attack of microbes.
3. As we know, microorganisms spoil our food. Spoilt food emits bad smell and has a bad taste and colour change. That is why, spoiling of food is a chemical reaction.
4. Mango fruits cannot be eaten after keeping them for a few days. Sometime later, they are found spoilt and rotten whereas spoilage of mango pickles is checked by using salts and edible oils which keep mango pickles fresh by preventing the attack of microbes.
5. When a person suffering from common cold sneezes, fine droplets of moisture carrying thousands of viruses gets spread in the air. The viruses may enter the body of a healthy person while breathing and result in breath-related diseases. That is why, we should always keep a handkerchief on the nose and mouth while sneezing.
6. There are some insects and animals which pass a disease to other but do not suffer from it. These insects are said to be acting as carrier. Housefly is one such carrier. The female *Anopheles* is the carrier of malaria. Likewise, female *Aedes* mosquito acts as carrier of dengue virus.
7. (a) The full form of ORS is Oral Rehydration Solution.
   (b) Several diseases, including cholera, tuberculosis, smallpox and hepatitis can be prevented by vaccination.
8. (a) Edward Jenner discovered the vaccine for smallpox in 1798.
(b) Some of the microorganisms cause diseases in human beings, plants and animals. Such disease causing microorganisms are called **pathogens**.

9. Some of the microorganisms cause diseases in plants like wheat, rice, potato, sugar cane, etc. These diseases reduce the yield of crops. These can be controlled by the use of certain chemicals which kill the disease-causing microbes.

10. As we know, spoilage of pickles is preserved by using oil and vinegar. Likewise, to prevent the attack of microbes, oil and vinegar are also used for preserving vegetables and fruits.

### WORKSHEET – 11 (FORMATIVE ASSESSMENT)

**MCQs**
1. (c)  
2. (c)  
3. (d)  
4. (d)  
5. (d).

**DO AS DIRECTED**
1. *Bacillus coli*  
2. Mosquito  
3. Dehydration  
4. F  
5. T  
6. T.

**DOUBLE MATCHING**
(A) — (d) — (iv), (B) — (c) — (iii), (C) — (a) — (i), (D) — (b) — (ii).

**ONE WORD SUBSTITUTION**
1. Protozoan  
2. Virus  
3. *Penicillium*  
4. Communicable  
5. Female *Anopheles*.

**ANALOGY TYPE QUESTIONS**
1. Virus  
2. Virus  
3. Bacteria  
4. Sugar  
5. Edward Jenner.

### CHAPTER – 3  (SYNTHETIC FIBRES AND PLASTICS)

**WORKSHEET – 12**

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

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**
1. Such a type of synthetic fibre which is used to make winter wearing dresses is known as acrylic.
2. Polythene is a kind of plastic. It is used for making commonly used polythene bags.
3. Being a poor conductor of heat and electricity, bakelite is used for making plugs and switches.
4. PVC (Polyvinyl chloride) is a kind of thermoplastic. It is used for manufacturing toys and also used for covering electric wires.
5. Teflon is special plastic and poor conductor of heat on which oil and water do not stick. That is why, it is used for making non-stick utensils.
6. As a responsible citizen, the 4R’s principles to be remembered are reduce, reuse, recycle and recover, respectively.
7. Plastic cookwares are used in microwave ovens for cooking food. In this ovens, the heat cooks the food but does not affect the plastic vessel.
8. A nylon thread is actually stronger than a steel wire, so nylon is used for making parachutes and ropes for rock climbing.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. Melamine is a kind of thermosetting plastic. It is a versatile material.
   It is used for making (i) floor tiles, and (ii) kitchenware.
2. Certainly, we can contribute towards reducing the use of plastic materials. We can use bags made of cotton or jute in lieu of plastic materials when we go for shopping. Apart from that, we can collect biodegradable and non-biodegradable wastes separately and also dispose separately.
3. As we know, synthetic clothes do not absorb sweat. In hot and humid weather, they stick to the body and make the person feel uncomfortable.
4. In the past, most of the buckets were made of iron which was very heavy and got affected by corrosion very fast. But nowadays, most of the buckets and mugs are made of plastics and which can be moulded into different shapes and sizes. That is why, plastic is light, strong and durable.
5. Plastic containers are favoured for storing food because of their light weight, lower price, good strength and easy handling. Plastic containers are also favoured for storing water, milk, pickles and dry food.
6. Corrosive metals when left exposed to moisture and air, get rusted whereas non-corrosive metals do not react with water and air, i.e., plastics. Various kinds of materials are made of plastics. That is why, they are used to store various kinds of materials, including chemicals.
7. The handle and bristles of a toothbrush should be made of same material, i.e., plastics. We know that plastic is very soft and can be bent very easily. The handle of toothbrush is very flexible and bristles are very smooth. Therefore, during cleaning the teeth, there is less possibility of any harm.
8. (a) The synthetic fibres which are prepared by various processes using raw materials of petroleum origin, are called petrochemicals.
   (b) Woollen clothes are biodegradable.
9. (a) Nylon
   (b) Rayon
   (c) Newyork and London
   (d) Rayon, nylon.
10. (a) False (b) True (c) True (d) False.
MCQs
1. \((d)\) 2. \((c)\) 3. \((d)\) 4. \((a)\) 5. \((c)\).

DO AS DIRECTED

ANALOGY TYPE QUESTIONS

ONE WORDS SUBSTITUTION

ACTIVITY
Do yourself.

CHAPTER – 4 (MATERIALS: METALS AND NON-METALS)

MCQs
1. \((d)\) 2. \((c)\) 3. \((d)\) 4. \((b)\) 5. \((c)\) 6. \((a)\) 7. \((c)\) 8. \((b)\).

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The metals which have the least reactivity and are found in free state in nature are called noble metals.
2. Gold is soft, extremely malleable and ductile. Therefore, it can be drawn into fine threads and can be beaten into leaves. That is why, gold is preferred for making jewellery.
3. Being a metal, aluminium is good conductor of heat. Hence, it is used for making utensils.
4. Non-metals are not ductile, therefore, they cannot be drawn into wires.
5. Oxides of non-metals are acidic in nature, because they turn blue litmus paper red.
6. The increasing order of reactivity can be represented as follows:
   - Gold < Copper < Hydrogen < Calcium < Potassium.
7. Iron, chromium and nickel are the constituents of an alloy stainless steel.
VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. The property of drawing metals into thin wires is called ductility. Gold, copper, silver and iron show ductility.
2. The elements which show both metals and non-metals properties, are called metalloids. Silicon and germanium are two metalloids.
3. Aqua regia is a mixture of concentrated nitric acid and hydrochloric acid in the ratio of 1 : 3 by volume.
4. When sulphur dioxide is dissolved in water, sulphurous acid is formed.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. We know that aluminium is very reactive metal. When it reacts with acids, it becomes more reactive being a metal. Hence, lemon pickle cannot be stored in an aluminium utensils.
2. Sodium and potassium are very reactive metals. They react vigorously with oxygen and water to generate big amount of heat. Hence, they are stored in kerosene.
3. (a) _______ (i)
   (Hints. Zinc is metal. As we know, metal is malleable, hence, it can be beaten into thin sheets.)
   (b) _______ (iii)
   (Hints. Generally, metals are ductile because they can be drawn into thin wires.)
4. White phosphorus has to be kept in water to prevent its contact with air because it is highly reactive.
5. (a) F  
   (b) T  
   (c) F  
   (d) F
6. (a) Homogeneous mixtures of two or more metals or a metal with a non-metal are known as an alloy. For example, brass and stainless steel.
   (b) Sodium and potassium are soft and can be cut with a knife very easily.
7. Those chemical reactions in which one element displaces another element from its compound in aqueous solution, are called displacement reactions.
   When copper sulphate reacts with zinc, it replaces red copper from copper sulphate solution.
   \[ \text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu} \]
   (Blue)  
   Colourless (Red)
8. (a) There are 92 metals and rest are non-metals among 116 elements.
   (b) When sodium reacts with water, it forms hydroxides along with hydrogen.
   \[ 2 \text{Na} + 2 \text{H}_2\text{O} \rightarrow 2 \text{NaOH} + \text{H}_2 \uparrow \]
9. To polish the old jewellery, goldsmith uses aqua regia, i.e., \((\text{HNO}_3 : 3\text{HCl})\). Aqua regia is a combination of mild acids. When goldsmith puts gold in acid solution, some gold must have dissolved in it. Therefore, there was a slight loss in weight of the jewellery.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. (a) Ores of aluminium are:
   (i) Bauxite \((\text{Al}_2\text{O}_3 \cdot \text{2H}_2\text{O})\)
   (ii) Cryolite \((\text{Na}_3\text{AlF}_6)\)

   (b) Ores of copper are:
   (i) Copper pyrites \((\text{CuFeS}_2)\)
   (ii) Copper glance \((\text{Cu}_2\text{S})\)
   (iii) Cuprite \((\text{Cu}_2\text{O})\)
   (iv) Malachite \([\text{CuCO}_3 \cdot \text{Cu(OH)}_2]\)
VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. When destructive distillation of coal is done, the vapours which condense in water form coal tar.
2. When coal is heated in the absence of air, coke is obtained.
3. Fossil fuels are exhaustible natural resources because they can be exhausted by human activities. They are limited in nature.
4. In India, petroleum is found in Assam, Gujarat, Bombay high and in river basins of Godavari and Krishna.
5. When coal is heated in the absence of air, a number of products are obtained and a black residue is left which contains mainly carbon called coke. This process is called **destructive distillation** of coal.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. The characteristics of coke are that it is a tough, porous and black substance and it is an almost pure form of carbon. Coke is used in the manufacturing of steel and in the extraction of many metals.
2. The two uses of CNG are:
   (a) CNG is used as non-polluting fuel for transport vehicles.
   (b) CNG is used for power generation.
3. In India, natural gas has been found in Tripura, Rajasthan, Maharashtra and in the Krishna Godavari delta.
4. The two advantages of judicious use of energy are given below:
   (a) It will delay the energy crisis.
   (b) It will give the scientists more time to develop more efficient alternate sources of energy.
5. (a) Petroleum is also known as black gold because of its great importance.
   (b) The first oil wells were found at Makum in Assam in 1867.
6. Petroleum is mixture of various hydrocarbons having different boiling points. As the number of carbon atoms increase, the boiling points also increase. This property is used to separate the different components of petroleum and is known as fractional distillation.
7. (a) The four amorphous forms of carbon are coal, charcoal, coke and lamp black.
   (b) **Two uses of coal are:**
      (i) Coal is used to make many useful products in industry.
      (ii) Coal is used to make many fuel gases like coal gas.
8. The full form of LPG is Liquefied Petroleum Gas. Its main component is butane. A smelling agent is added to it to detect the leakage of the gas.
9. Petroleum and natural gas are formed by the decomposition of aquatic plants and dead remains of living organisms. Natural gas is found in Tripura and Rajasthan whereas petroleum is found in Gujarat and Mumbai high.
10. (a) No, their formation is a very slow process and conditions for their formation cannot be created in the laboratory.
(b) Coal gas was used for street lighting for the first time in London in 1810.

**WORKSHEET – 26 (FORMATIVE ASSESSMENT)**

**MCQs**
1. (c)  2. (a)  3. (c)  4. (a)  5. (d).

**DO AS DIRECTED**
1. Inexhaustible
2. Carbonisation
3. Black
4. T
5. T

**ANALOGY TYPE QUESTIONS**
1. Coal tar
2. Coal
3. Lubricating oil
4. Ointments
5. CNG.

**ONE WORDS SUBSTITUTION**
1. Anthracite
2. Coal gas
3. Fuel
4. Petroleum
5. Coal.

**DOUBLE MATCHING**
(A) — (c) — (ii), (B)— (a) — (iii), (C) — (b) — (i).

**ACTIVITY**
Do yourself.

**CHAPTER – 6 (COMBUSTION AND FLAME)**

**WORKSHEET – 27**

**MCQs**
1. (d)  2. (a)  3. (d)  4. (b)  5. (c)  6. (a)  7. (b)  8. (a).

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**
1. Ideal fuels are cheap, readily available, readily combustible and easy to transport. They have high calorific value.
2. Non-luminous flame is a kind of flame which produces large amount of heat and little amount of light.
3. The combustion can take place in the presence of combustible substance, supporter of combustion, 
   *i.e.*, oxygen, and attainment of ignition temperature.
4. The main constituent of biogas is methane and of kitchen gas (LPG) is butane.
5. Outermost zone of candle flame is used by goldsmith to melt gold.

**WORKSHEET – 28**

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. Respiratory problems are caused by unburnt carbon particles in air which are dangerous pollutants.
2. Flame is the chemical process in which substances vapourise during burning. Kerosene oil and molten 
   wax are the examples of flame.
3. Heat and light are produced by nuclear fusion in the sun.
4. Fuel is defined as the substance which burns readily in air and releases heat energy. Wood, charcoal 
   and petrol are the examples of fuel.
5. Matchstick is a mixture of antimony trisulphide, potassium chlorate and white phosphorus with 
   some glue and starch was applied on the head of a match made of suitable wood.
6. The molecular formula of potassium bicarbonate is KHCO₃ and sodium bicarbonate is NaHCO₃.
7. CO₂ covers the fire like blanket, because CO₂ is heavier than oxygen. As a result of this, the contact 
   between the fuel and oxygen is cut off and finally fire gets controlled.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. Paper cup containing water does not catch fire on heating, because the heat supplied to the paper 
   cup is transferred to water by conduction. Therefore, in the presence of water, the ignition temperature 
   of paper is not reached there. Hence, it does not burn.
2. When electrical equipment is on fire, water behaves like electricity and harms those persons trying 
   to douse the fire. When electrical equipment is on fire, CO₂ acts as the best extinguisher. CO₂ is 
   heavier than O₂. Being heavier, it covers the fire like blanket.
3. The use of CNG as fuel in automobile has reduced pollution in our cities, because CNG produces 
   very small amount of harmful products as compared to use of diesel and petrol. That is why, it is 
   more eco-friendly.
4. As we know, calorific value is the amount of heat energy produced on complete combustion of 1 kg 
   of a fuel.
   \[
   \text{Calorific value} = \frac{\text{Heat produced}}{\text{Amount of heat}} = \frac{1,50,000}{2.5} = 60,000 \text{ kJ/kg.}
   \]
5. When LPG is used as a fuel in home or industry, it burns most efficiently whereas wood does not 
   burn completely. Because of this fact, on burning of wood, more polluted gas liberates which is 
   harmful to an environment unlike LPG. That is why, LPG is better domestic fuel than wood.
6. As we know, fuel like petrol is used in moving the vehicle from one place to other place. Similarly, 
   food acts as fuel in our body. In our body, food is broken down by reaction with oxygen and heat is 
   produced.
7. (a) A substance starts burning when its ignition temperature is reached or fulfilled.
    (b) When water is poured on fire, the ignition temperature of the combustible substance is lowered 
        means not fulfilled.
WORKSHEET – 29

SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. (a) As we know, the ignition temperature of yellow phosphorus is very low, so it catches fire on its own when exposed to air.
   (b) During respiration, oxidation takes place but energy is released so slowly that we cannot see what gets happened. Therefore, it is known as slow combustion.

2. (a) The process of rusting can be called combustion because in the atmosphere rusting can occur in the presence of air and water in the form of slow combustion.
   (b) When crackers are ignited, explosion takes place.

3. Water of Ramesh’s beaker will get heated in a short period, because the outermost part of the flame is the hottest due to attain the ignition temperature more.

WORKSHEET – 32 (FORMATIVE ASSESSMENT)

MCQs

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

DO AS DIRECTED

1. CNG  2. Inflammable  3. Ignition temperature

ONE WORDS SUBSTITUTION

1. Rapid combustion  2. Phosphorus  3. Acid rain

ANALOGY TYPE QUESTIONS


DOUBLE MATCHING

(A) — (b) — (ii), (B)— (c) — (i), (C) — (a) — (iii).

ACTIVITY

Do yourself.

CHAPTER – 7 (CONSERVATION OF PLANTS AND ANIMALS)

WORKSHEET – 33

MCQs

1. (d)  2. (d)  3. (d)  4. (c)  5. (a)  6. (a)  7. (c)  8. (a).
VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The process of formation of deserts from less fertile/unfertile land is called desertification.
2. Survival of some animals has become difficult because of disturbances in their natural habitat.
3. Birds who cover long distance to reach another land, are known as migratory birds.
4. Those species whose numbers are reducing gradually and are at the risk of being endangered are known as vulnerable species.
5. IUCN (International Union for Conservation of Nature and Natural Resources) produces the Red List.

WORKSHEET – 34

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Extinction is defined as the species of organisms which have completely disappeared from the face of the earth.
2. Those species whose population are originally small and scattered are known as rare species.
3. The increased temperature on the earth disturbs the water cycle and may reduce rainfall. This could cause droughts.
4. Conservation of forests can be done by planned harvesting, i.e., cutting few trees at a time, so that the uncut trees could prevent soil erosion and make seeds.
5. Archaeopteryx is a fossil bird which has completely disappeared from the face of the earth.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. The organisms, i.e., animals, trees and plants which inhabit their original natural habitats such as forests, hills, ponds, etc., and which are away from human interference are called wildlife. Elephant and house sparrow are the two examples of wildlife.
2. We know that biodiversity is the variety of plants, animals and microorganisms. To save the life of these organisms, we should conserve the biodiversity. To maintain the biodiversity and culture of that area, biosphere reserves play significant role.
3. Some tribals depend on the jungle, because they obtain required food and protection from jungle. They also get medicine from medicinal plants.
4. Endangered species can be conserved by preserving the habitat of wildlife and government regulations relating to hunting and their effective implementation.
5. Two endemic flora: Sal and wild mango.
   Two endemic fauna: Barking deer and wild dog.
6. Vegetation slows down the flow of rainwater on land and increases the absorption of water by the soil.
7. If we talk about the utility of paper, it plays a significant role in daily routing life. Hence, we should save paper because it takes 17 full-grown trees to make one tonne of paper.
8. Generally, the top layer of soil is exposed due to floods. Removal of the top layer of the soil exposes the lower, hard and rocky layers. The resulting soil has less humus and less fertility and finally, fertile land gets converted into deserts.
9. The Red List is a compilation of endangered wildlife species whereas the Red Data Book provides data of all the endangered animals and plants which is included in the Red List.
10. (a) wildlife sanctuary  
   (b) biodiversity  
   (c) climatic  
   (d) wildlife.

**WORKSHEET – 38 (FORMATIVE ASSESSMENT)**

**MCQs**

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

**DO AS DIRECTED**

1. Increases  
2. Biosphere  
3. Flora  
4. T  
5. T  
6. F.

**ANALOGY TYPE QUESTIONS**

1. Tiger  
2. Endangered species  
3. Madhya Pradesh, Uttarakhand  
4. Wild mango  
5. 19.

**ONE WORDS SUBSTITUTION**

1. Conservation  
2. Endangered species  
3. Fauna  
4. Red Data Book  
5. Biosphere reserves.

**DOUBLE MATCHING**

(A) — (c) — (ii), (B) — (a) — (iii), (C) — (b) — (i).

**ACTIVITY**

Do yourself.

**CHAPTER – 8 (CELL – STRUCTURE AND FUNCTIONS)**

**WORKSHEET – 39**

**MCQs**

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

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. The central dense body in the centre of the cell is called nucleus.
2. The size of the smallest cell is 0.1 to 0.5 micrometer (micron) in bacteria.
3. The ostrich’s egg with 170 mm diameter is the largest cell in the world.
4. Centrosome is present in animal cells, but absent in plant cells.
5. Plasma membrane/cell membrane is the outermost layer of an animal cell.
6. Cell division is formed by growth and reproduction.
7. *Chlamydomonas* and bacteria are two unicellular plants.

**WORKSHEET – 40**

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. Plant cells differ from animal cells in having an additional layer around the cell membrane, termed as cell wall.
2. Golgi bodies collect and distribute the substances made in the cell.
3. *Amoeba* and white blood cells of our blood continuously change their shape.
4. Hooke made thin slices of cork because the cork was solid and its details could not be seen.
5. The main constituents of forming major part of protoplasm are carbon, hydrogen, nitrogen and oxygen.
6. Nerve cell is the longest in our body measuring 90 micrometers in length.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. (a) Chloroplasts are present (found) only in the plant cell.
   (b) Centrioles and centrosome are concerned with cell division.
2. (a) Cells are known as “building blocks of life” because all living things are made up of one or more cells.
   (b) The nucleus controls all the functions of the cells.
3. A group of cells of the same type make up different tissues, *e.g.*, muscle tissue.
   Several different types of tissues get together to form an organ, *e.g.*, a stomach.
4. **The types of cell division are:**
   (a) **Mitosis:** It takes place in normal cells and is responsible for growth of organisms.
   (b) **Meiosis:** It takes place only in the reproductive parts of the body.
5. The cells in an elephant are not larger than the cells in a rat because the size of the cell does not depend on the size of the body of the animal or plant.
6. As you know, plant cells have an additional layer around the cell membrane. Chloroplasts are green-coloured plastids present in the plant cells. That is why, plant can manufacture their food by photosynthesis.
7. Cells having without well-organised nucleus, *i.e.*, lacking nuclear membrane, are known as prokaryotic cells. The organisms with these kinds of cells are called prokaryotes, *e.g.*, bacteria and blue-green algae.
   Some cells (*e.g.*, onion cells and cheek cells) having well-organised nucleus with a nuclear membrane are designated as eukaryotic cells. All organisms other than bacteria and blue-green algae are called eukaryotes.
8. (a) Tomatoes are red in colour due to the presence of chromoplasts in their cells whereas leaves are green in colour due to the presence of chloroplasts in their cells.
   (b) Due to the presence of cell wall, plant cells are more rigid in shape than animal cells.
9. When a hen’s egg is boiled, a white material surrounds the yellow part. White material named albumin gets solidified on boiling. The yellow component is yolk.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. (a) Being a network of membranes, endoplasmic reticulum provides a large surface area for life functions to take place.
   (b) Ribosomes are the site of protein synthesis.

MCQs

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

DO AS DIRECTED

1. Amoeba  2. Organ  3. Chromosomes

ANALOGY TYPE QUESTIONS

1. Plant and animal cell  2. Chloroplast  3. Bacteria and blue-green algae

ONE WORDS SUBSTITUTION

1. Cell organelles  2. Vacuole
5. Nucleus.

DOUBLE MATCHING

(A) — (c) — (i), (B) — (a) — (iii), (C) — (b) — (ii).

CHAPTER – 9  (REPRODUCTION IN ANIMALS)

MCQs

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. Development of the baby takes place in the uterus.
2. Cloning is the production of an exact copy of a cell, any other living part, or a complete organism.
3. The zygote divides repeatedly to form an embryo.
4. Internal fertilisation takes place in human beings and dogs.
5. The tail helps the sperms to swim in the oviduct to reach the egg.
6. When the development of the foetus is complete, the mother gives birth to the young ones.
7. The embryo of hen takes about three months to develop into a chick.
8. Frog and silkworm are the two examples of metamorphosis.

WORKSHEET – 46

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Hen, frog, lizard and butterfly are called oviparous animals because they lay eggs.
2. Metamorphosis does not take place in humans because in humans, the body parts similar to the adults are present since the time of the birth.
3. Hermaphrodites are organisms in which both male and female gametes are present in the same individual.
4. Dolly was born on 5th July, 1996 and died on 14th February, 2003. Hence, she lived for nearly 7 years.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. The internal fertilisation is a process of fertilisation which takes place inside the female body, e.g., human beings.
   The external fertilisation is a process of fertilisation in which the fusion of a male and a female gametes takes place outside the female body, e.g., fish.
2. (a)—(i), (b)—(ii), (c)—(ii), (d)—(i).
3. During their lifespan, all animals reproduce to produce offsprings. So even after they die, the species survives.
4. The jelly plays significant role in fertilisation of a frog’s egg. The jelly holds the eggs together and provides protection to the eggs.
5. (a) External fertilisation takes place in oviparous animals.
   (b) Cow and cat are the examples of viviparous animals.
6. (a) Product of fertilisation—Zygote.
   (b) Changes taking place during the development of an animal—Metamorphosis.
7. (a) Embedding of an embryo takes place in the wall of uterus.
   (b) Vas deferens are also known as sperm ducts which carry the sperms from the testis to the urethra.
8. Sometimes, women are not able to bear babies because of the failure of sperms to fuse with the eggs for fertilisation. In such cases, doctors collect freshly released eggs and sperms and keep them together for a few hours for IVF or in vitro fertilisation.
   In case fertilisation occurs, the zygote is allowed to develop for about a week and it is placed in the mother’s uterus. Complete development takes place in the uterus and the baby is born like any other baby. The technique used in this process is called test tube baby.

WORKSHEET – 47

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. (a) Millions of sperms are produced by the testes.
   (b) External fertilisation takes place in frog.
2. (a) Ian wilmut  
   (c) Reproduction  
   (d) Zygote, embryo.  

(b) Onset  

WORKSHEET – 50 (FORMATIVE ASSESSMENT)

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

DO AS DIRECTED
1. Endocrine  
2. Sexual  
3. Viviparous  
4. T  
5. T  
6. F.

ANALOGY TYPE QUESTIONS
1. Asexual reproduction  
2. Testis  
3. Human beings  
4. Binary fission  
5. Internal fertilisation, external fertilisation.

ONE WORDS SUBSTITUTION
1. Cervix  
2. Vas deferens  
3. Placenta  
4. Umbilical cord  
5. Amniotic fluid.

QUIZ
1. External fertilisation  
2. Single  
3. Oviparous  
4. Buds  
5. Womb.

ACTIVITY
Do yourself.

CHAPTER – 10 (REACHING THE AGE OF ADOLESCENCE)

WORKSHEET – 51

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. At puberty, the growing voice box named larynx in boys can be seen as protruding part of the throat called Adam’s apple.
2. Duct glands are those glands from which the secretion comes out through ducts.
3. Tear glands and sweat glands are two duct glands.
4. Pituitary gland and thyroid gland are known as ductless glands.
5. Thymus gland is a kind of gland whose size gets reduced as the child grows older.
6. The several changes of human body during adolescence mark the onset of puberty.
7. Endocrine glands release hormones into the bloodstream to reach a particular body part are called target site.
8. Adrenaline helps the body for surviving from stress when one is very angry, embarrassed or worried.
9. Goitre is a kind of disease which is caused by the deficiency of iodine.

**WORKSHEET – 52**

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. Hormones are chemical substances which control changes at adolescence.
2. Pituitary gland secretes growth hormone which is responsible for the normal growth of a person.
3. Hormones are the term used for secretions of endocrine glands responsible for changes taking place in the body.
4. Apart from oestrogen, progesterone hormone is secreted by ovaries.
5. There are 23 chromosomes present in the nucleus of a single sperm.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. (a) Ductless glands are those glands from which the hormones are directly poured into the blood.
   (b) The other name of ductless glands is endocrine glands.
2. As you know, adolescence is a stage of rapid growth and development. Hence, the diet for an adolescent should be carefully planned, i.e., the person should eat a balanced diet.
3. (a) Endocrine glands secrete juices, e.g., liver secretes bile.
   (b) Endocrine glands secrete hormones, e.g., adrenal glands secrete hormones.
4. (a) Gonadotropin
   (b) Thyroid
   (c) Insulin
   (d) Iodine.
5. Exocrine glands secrete enzymes which come out through ducts, e.g., salivary gland.
   Endocrine glands secrete hormones which are pushed directly into the blood, e.g., adrenal gland.
6. At the stage of puberty, they, i.e., girls and boys, produce the gametes, i.e., sperm and ova. Girl’s breasts begin to develop and boys facial hair begin to grow, i.e., moustaches and beard. These features help to distinguish the male from the female. These are called secondary sexual characters.
7. (a) The sex of the baby determining from XX chromosomes is female baby.
   (b) The sex of the baby determining from XY chromosomes is male baby.
8. The sex of the unborn baby is determined by the XX and YY chromosomes in a zygote. X chromosome stands for female and Y chromosome stands for male character. When X and X chromosomes form zygote (XX), the baby is female. When X and Y chromosomes form zygote (XY), the baby is male.
9. (a) X chromosomes stand for female characters and Y chromosomes stand for male characters.
   (b) The full form of AIDS is Acquired Immuno Deficiency Syndrome.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. (a) The endocrine gland and the hormone used for maintaining calcium in the blood are thyroid and calcitonin, respectively.
   (b) The endocrine gland and the hormone used for regulating calcium in the body are parathyroid and parathyroid hormone, respectively.

MCQs
1. (c)  2. (a)  3. (d)  4. (d)  5. (c).

DO AS DIRECTED

ANALOGY TYPE QUESTIONS

ONE WORDS SUBSTITUTION

PAPER-PEN TEST
1. Hormones secreted from pituitary stimulate testes and ovaries to release testosterone and oestrogen.
2. Pituitary gland is known as master gland.
3. It is very important to eat balanced food for maintaining personal hygiene during adolescence.

ACTIVITY
Do yourself.

CHAPTER - 11  (FORCE AND PRESSURE)

MCQs
1. (a)  2. (a)  3. (a)  4. (b)  5. (a)  6. (c)  7. (b)  8. (b).
VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The pressure exerted by air around us is known as atmospheric pressure.
2. Weight of an object is the force exerted by the earth on it.
3. The resulting force due to the action of muscles is known as the muscular force.
4. The total force will be equal to 6 newtons because forces acting in the same direction will be added to each other as a resultant force.
5. Pressing a rubber ball with the hand shows that force can change the shape of an object.
6. Thrust will also be doubled.
7. The rope will move towards side A because more force is applied by side A.

WORKSHEET – 58

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. (d) Atmospheric pressure.
2. Electrostatic force might be responsible for the attraction between the balloon and the wall.
3. The speed of a body can be increased or decreased by applying force.
4. The ball comes to rest due to the force of friction acting in the opposite direction to the motion of the ball.
5. There should be at least two objects for a force to come into play.
6. Atmospheric pressure decreases when the temperature increases.
7. When combing your dry hair, it acts as an electrostatic force acts.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. According to the question,
\[ P_1 = \frac{M}{A}, \quad P_2 = \frac{2M}{A} \]
\[ \frac{P_1}{P_2} = \frac{M \times A}{A \times 2M} = \frac{1}{2} \]
∴ Ratio of pressures is 1 : 2.
2. (a) Force of gravity
   (b) Force of gravitation (weight)
   (c) Magnetic force
   (d) Muscular force.
3. As we know, pressure is equal to force per unit area. Therefore, when we hammer a sharp nail, force acts on a smaller area, and it exerts more pressure on the nail.
4. We know that atmospheric pressure decreases with high altitude. Since the pressure of the blood inside the body is high, mountaineers suffer from nose bleeding.
5. The piece of iron gets flattened due to the force of hammering.
6. We know that atmospheric pressure is very low in space. The pressure inside our body is higher. Therefore, astronauts wear specially made suits.
7. We do not feel the effect of atmospheric pressure because air is present everywhere. The pressure of air inside our body is also same as that of the atmosphere.
8. (a) If area is doubled and keeping the force constant, then pressure gets halved.
   (b) If force is doubled and keeping an area constant, then pressure gets doubled.

WORKSHEET – 59

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. As we know, pressure is inversely proportional to area. According to above fact, as compared to thin straps, broader straps have greater area, therefore, it is comfortable to lift a school bag with broad straps.
2. When a ball is hit by batsman, then this situation identifies push. When we open a drawer, then this situation identifies pull.

WORKSHEET – 62 (FORMATIVE ASSESSMENT)

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

DO AS DIRECTED

ANALOGY TYPE QUESTIONS
1. Forces act in opposite direction  2. Is less, is more
3. Atmospheric pressure  4. Pulling
5. Exert pressure on the walls of the container.

PAPER-PEN TEST
1. Objects fall towards the earth because of gravitational force.
2. The force exerted by a charged body is known as electrostatic force.
3. A force may bring a change in the state of motion.

CHAPTER – 12  (FRICTION)

WORKSHEET – 63

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. When motion of the body with respect to motion of another body arises, then the process is called relative motion to each other.
2. Banana peel has very smooth surface. Being a smooth face, it does not contain friction resulting in person gets slipped.
3. The frictional force depends on the shape of the object and the nature of the fluid.
4. While walking on the wet floor, it does not provide sufficient friction which is required. Therefore, it is more difficult to walk on a wet floor.

WORKSHEET – 64

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The friction between a moving object and the air through which it moves, is known as air resistance.
2. Static friction comes into play to counterbalance the applied force on the body.
3. It is difficult to walk on ice because the friction between feet and ice is less.
4. Efficiency is related with property of machine doing more work without consuming more energy.
5. Spring balance is a device used for measuring the weight of the body.
6. Force of friction helps the brake system to stop the car.
7. Force of friction is responsible for wear and tear of machinery.
8. Dynamic friction is the force required to keep moving one body steadily over another.
9. Fluid friction can be minimised by giving suitable shapes to bodies moving in fluids.
10. The hands become hot due to the force of friction.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. Generally, sportsmen use shoes with spikes because they produce the required friction to maintain the balance. Due to friction, shoes are able to hold the ground strongly.
2. Sliding friction is less than static friction because it comes into play once the body has started sliding. To make the body slide, more force is required to overcome the irregularities in the surface of the body.
3. It is very difficult to walk on the soapy marble floor because soapy marble floor reduces the frictional force, i.e., there is little friction between the floor and the feet.
4. Fluids also exert a frictional force on the body moving through them. Therefore, the shape of the body is streamlined to overcome the frictional force of fluids and move smoothly through them.
5. Two examples where rolling friction is utilised are the use of ball-bearing between hubs and the axles of ceiling fans and bicycles.
6. (a) The frictional force acts parallel to the inclined surface which is opposite to the direction of the sliding of the book.
   (b) Obviously, the water opposes the movement of the boat.
7. Seema will have to apply more force because she has to push a heavier box. As you know, a heavier box produces a larger frictional force as compared to lighter box due to surface of contact.
8. (a) We sprinkle talcum powder on the carrom board to reduce the friction.
   (b) Soles of shoes are grooved to provide better grip between the soles and the ground.
9. During writing on rough blackboard, the chalk is rubbed on it. As a result of this, soft chalk particles get stuck to the irregularities of rough blackboard surface making the writing visible.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. (a) The soles of shoes wear out due to the friction between the soles and the ground.
   (b) As you know, grease is a kind of lubricant used between the moving parts of the cycle to reduce friction and increase efficiency.

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

DO AS DIRECTED
1. Drag 2. Reduce 3. Reduce

ANALOGY TYPE QUESTIONS
1. Less friction 2. More, less 3. Less, more
4. Static friction 5. Less, more.

QUIZ
1. Frictional force does not depend on the surface area.
2. Force of friction.
3. Yes, air resistance increase with the speed of the moving object.
4. Rolling friction is less than sliding friction.
5. Fluids.

FIND THE ODD ONE OUT

CHAPTER – 13 (SOUND)

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The full form of SONAR is ‘Sound Navigation And Ranging’ which indicates the location of the things underwater, i.e., shipwrecks.
2. Ultrasound is used for detecting flaws and cracks in metallic and other structures.
3. When the frequency of vibration is higher, then sound has a higher pitch.
4. Sound cannot travel in vacuum.
5. The base loudness level is defined as loudness of sound that human ear can just perceive.
6. Sound is produced by voice box or the larynx.
7. We hear the thunder a little later than we see the flash of lightning because the speed of sound is less than the speed of light.

**WORKSHEET – 69**

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**
1. This happens because the speed of sound is much greater than the speed of the car.
2. Plants absorb sound and thus help us in minimising noise pollution.
3. The SI unit of time-period is second and the SI unit of frequency is hertz.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**
1. (a) Time-period is the time taken to complete one oscillation.
   (b) The sounds of frequencies less than 20 Hz and more than 20,000 Hz cannot be detected by the human ear. Such sounds are inaudible sounds.
2. (a) Echo is the reflection of sound which reaches the ears after a gap of \( \frac{1}{10} \) of a second or more.
   (b) Ultrasound equipment works at frequencies higher than 20,000 Hz.
3. (a) Pinna helps in receiving sound waves.
   (b) If the eardrum is absent, we would not be able to hear.
4. Time taken for 500 vibrations = 1 second
   
   Time taken for 1 vibration = \( \frac{1}{500} \) second
   
   \( \therefore \) Time-period = \( \frac{1}{500} \) second.
5. We know that frequency = \( \frac{\text{No. of vibrations}}{\text{time}} \)
   
   \( \therefore \) No. of vibrations = frequency × time
   = \( 1.5 \times 1000 \times 1 \)
   = 1,500 vibrations.
6. (a) If the amplitude increases three times, the loudness will increase by nine times.
   (b) Amplitude of a vibrating body determines loudness.
7. (a) Birds chirp with the help of syrinx in their windpipe whereas insects produce sound by flapping their wings.
   (b) Frequency of a vibrating body determines the pitch of the sound.
8. (a) noise
   (b) amplitude
   (c) frequency
   (d) noise pollution.
9. (a) A hearing impaired child can communicate effectively by using sign language.
   (b) We can control noise pollution by designing and installing silencing devices in machines.

10. (a) Violin (b) Drums
    (c) Flute (d) Jal Tarang.

WORKSHEET – 72 (FORMATIVE ASSESSMENT)

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

DO AS DIRECTED

UNSCRAMBLE THESE GIVEN LETTERS USING CLUES AND WRITE CORRECT WORD
1. HARP 2. ECHO 3. NOISE
4. BATS 5. ULTRASONIC.

ANALOGY TYPE QUESTIONS
1. More, less 2. Larger 3. Violin

DOUBLE MATCHING
(A) — (c) — (ii), (B) — (a) — (i), (C) — (b) — (iii).

CHAPTER – 14 (CHEMICAL EFFECTS OF ELECTRIC CURRENT)

WORKSHEET – 73

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The difference in electric potential between two points is known as voltage.
2. Amount of charge flowing or present on a body, is called coulomb. The SI unit of charge is coulomb.
3. The materials which allow electric current to pass through them, are called good conductor of electricity.
4. Yes, the air, i.e., dry air, behaves as an insulator whereas damp air behaves as conductor.
5. Bubbles of a gas may be formed by the process of chemical effects of currents.
6. Electric circuit is a path of flow of current. The flow of current is possible only when the charged bodies have a closed path to travel.
7. When an electric current is passed through a conducting solution, then a chemical reaction takes place.
8. Distilled water behaves as an insulator because there are no salts dissolved in it.

**WORKSHEET – 74**

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**

1. Apart from chemical effect, electric current produces magnetic effect.
2. Electrodes are the terminals through which current is passed into a liquid.
3. An electrolyte is a liquid which is a good conductor of heat.

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. As we know, pure water is free of salts and thus it is an insulator. So, to make pure water conducting, we can add some salts or acid to it.
2. When the free ends of a tester are dipped into a solution, the solution conducts electricity. The magnetic needle shows deflection due to magnetic effect of electric current.
3. These three liquids are lemon juice, tap water and vegetable oil which when tested in the given manner may cause the magnetic needle to deflect.
4. (a) Chromium is used for electroplating because it has a shiny appearance, does not corrode and is scratch resistant.
   (b) Electrolysis is the breaking up of a compound from its solution on passing electric current through the electrolyte.
5. As we know, during heavy downpour, rainwater dissolves large amount of impurities from the atmosphere. Due to this, water becomes impure and conducts electricity. Hence, electrician should never carry out electrical repairs outdoor during heavy downpour, otherwise person might gets shocked.
6. As you know, sea water contains large amount of salt. Due to this, it conducts electricity whereas drinking water does not conduct electricity because of lack of acid, base and salt. Due to presence of electricity in sea water, compass needle deflection more.
7. Undoubtedly, rainwater is as good as distilled water. But when rainwater is mixed with impurities, then it is converted into impure water and conducts electricity. As it conducts electricity, the compass needle shows deflection. Therefore, when she tested rainwater in the form of impure water, the compass needle showed deflection.
8. The water which is used to extinguish fire, contains a few quantity of minerals and salts that conducts electricity. If people do not shut off main electrical supply, then huge current conducts electricity causing major problem.

**WORKSHEET – 75**

**SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

1. Water contains few quantity of salts, so it is a good conductor of electricity. As a result of this, you can be electrocuted.
2. Tin is less reactive than iron. Thus, food stored in tin electroplated iron cans, is prevented from being spoilt.
**WORKSHEET – 78 (FORMATIVE ASSESSMENT)**

**MCQs**
1. (c) 2. (a) 3. (b) 4. (b) 5. (d).

**DO AS DIRECTED**
4. T 5. T 6. F.

**ANALOGY TYPE QUESTIONS**
1. Hydrogen ion 2. Bad conductor of electricity
3. Anion 4. J.F.Daniel
5. Rechargeable.

**PAPER-PEN TEST**
1. Electrically charged atoms or groups of atoms are called ions.
2. Light Emitting Diode.
3. Sodium ion gains electron.
4. Yes, kerosene is non-electrolyte.
5. Hydrogen.

**FIND THE ODD ONE OUT**

**CHAPTER – 15 (SOME NATURAL PHENOMENA)**

**WORKSHEET – 79**

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

**VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)**
1. When the two bodies have the same charges, they repel each other and when the two bodies have different charges, they attract each other.
2. The electrical charges generated by rubbing is called static electricity.
3. A lightning rod is a device used to protect buildings from the effect of the lightning.
4. Earthquake is caused by a disturbance deep inside the earth’s crust.
5. A house or a building is the safest place during lightning.
6. Earthing is provided in buildings to protect us from electrical shocks due to any leakage of electrical current.
7. Yes, charge can be transferred from a charged object to another through metal conductor.
VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. Benjamin Franklin, an American scientist in 1752, established the relationship between lightning and spark.
2. Yes, the electric eel in South America emits electric discharge.
3. The earthquake’s point of initial ground rupture is called hypocentre and the point above ground level is known as epicentre.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. (a) — (ii)
   (b) — (ii).
2. (a) — (F)
   (b) — (T)
   (c) — (F)
   (d) — (T).
3. While taking off a sweater, it gets rubbed and due to this, friction occurs between the hair and the sweater. As a result of this, the sweater gets charged which results in a crackling sound.
4. Our body is a good conductor of electricity. If we touch it with our hand, our charged body transfers its charge to the earth through our body.
5. The main three states in India where earthquakes are more likely to strike are Jammu and Kashmir, Rajasthan and Gujarat, respectively.
6. Carrying an umbrella is not good during thunderstorms because the pointed rod of an umbrella can become the target of thunderstorms. The charges produced during a thunderstorm can flow through an umbrella and harm us.
7. When a glass rod is rubbed with a silk cloth, both of them get charged because charges are always produced in pairs.
8. (a) When a charged object is kept on small bits of paper, it will attract bits of paper.
   (b) When an uncharged object is kept on small bits of paper, it will have no effect on bits of paper.
9. (a) The body from which the charge has been earthed looses the charge on it. Such a body is known as a ‘discharged body’.
   (b) A major tsunami occurred on 26th December, 2004 in India.
10. When negative and positive charges meet, they produce streaks of bright light and sound. These streaks are identified as lightning. Lightning is also known as electric discharge.

DO AS DIRECTED

1. Plate
2. Seismic
3. Earthing
4. T
5. T
6. F
ANALOGY TYPE QUESTIONS

1. Repel  
2. 26 January 2001  
3. Seismic waves  
4. Seismograph  
5. Mantle.

QUIZ

1. When oppositely charged clouds come closer to each other, lightning is caused.
2. Point of origin of an earthquake is called hypocentre.
3. Magnitude of an earthquake is measured on richter scale.
4. Tsunami
5. Lightning conductor.

CHAPTER - 16 (LIGHT)

WORKSHEET – 84

MCQs

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

8. (b)  
9. (d)  
10. (b).

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. If an image formed by a mirror, the left of the object appears on the right and the right appears on the left, is known as lateral inversion.
2. The colours which appear in the spectrum of light are VIBGYOR, i.e., Violet, Indigo, Blue, Green, Yellow, Orange, Red.
3. The objects which shine in the light of other objects, are called illuminated objects, e.g., moon.
4. The objects which emit their own light are known as luminous objects, e.g., sun.
5. Night-blindness is caused by the deficiency of vitamin A.
6. The outer coat of the eye is white, called cornea which can protect the interior portion of the eye because of its toughness.
7. Braille system has 63 dot patterns or characters.
8. A periscope is a simple device that enables us to see overhead objects that are not directly in the range of our sight.

WORKSHEET – 85

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. Eyelids prevent the objects from entering the eye.
2. A convex mirror is used in vehicles because it gives larger image as compared to object.
3. The wavelength of red light is the highest, therefore, it is used at traffic signal to see the colour of light clearly.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. When the light falls on an object, it is reflected from the surface of an object. This reflected light enters our eyes and enables us to see an object.

2. The angle between the normal and the incident ray is known as angle of incidence whereas the angle between the normal and the reflected ray is known as the angle of reflection.

3. (a) The point of entry of optic nerve into eyeball is known as blind spot.
   (b) A person who can see clearly the nearby objects but not the far-off objects, is called short-sighted person and the defect is short-sightedness or myopia.

4. (a) When a line makes an angle of $90^\circ$ to the line representing the mirror at the point where the incident ray strikes the mirror. This line is known as the normal to the reflecting surface at that point.
   (b) A person who can see clearly the distant objects but is not able to see the nearby objects clearly, is known as long-sighted person and the defect is long-sightedness or hypermetropia.

5. (a) Tactual aids include Braille writer slate and stylus which help the visually challenged persons in taking notes, reading and writing.
   (b) When two mirrors are placed edge to edge at an angle of $60^\circ$ to each other, five images will be formed.

6. (a) Optical aids include bifocal lenses, contact lenses, tinted lenses, magnifiers and telescopic aids.
   (b) The violet colour has the highest dispersion of light.

7. The image which can be obtained on a screen, is called real image and rays of real image actually meet at a point.
   The image which cannot be obtained on a screen, is known as virtual image and rays of virtual image do not meet at a point.

8. Laws of reflection are given below:
   (i) The incident ray, the normal at the point of incidence and the reflected ray all lie in the same plane.
   (ii) The angle of incidence ($\angle i$) is always equal to the angle of reflection ($\angle r$).

9. Eyes are the most wonderful gift of nature given to us and they must serve us for whole life. Our eyes can be damaged by playing carelessly or by hurting them with sharp projections.

WORKSHEET – 86

SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. The objects cannot be seen inside the darkroom, because there is no light. The objects outside the room, can be seen only if there is light.

WORKSHEET – 89 (FORMATIVE ASSESSMENT)

MCQs

1. (c) 2. (c) 3. (d) 4. (c) 5. (c) 6. (c).

DO AS DIRECTED

1. Invisible 2. Reflection 3. Real
ANALOGY TYPE QUESTIONS
1. Diffused reflection 2. Concave lens
5. Non-luminous.

ONE WORDS SUBSTITUTION
1. Incident ray 2. Normal
3. Illuminated objects 4. Red
5. Violet.

PAPER-PEN TEST
1. $45^\circ$. [$\therefore$ Angle of incidence = Angle of reflection]
2. The objects which give their own light are called luminous objects.
3. Sunlight is also known as white light.

CHAPTER – 17 (STARS AND THE SOLAR SYSTEM)

WORKSHEET – 90

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Planets do not twinkle on a dark clear night.
2. A place where there are no bright lights and the atmosphere is clear, watching night sky will be fascinating.
3. The day on which the whole disc of the moon is visible is known as the full moon day.
4. The stars are not visible during the day because of the glare of bright sunlight.
5. When venus appears in the western sky just after sunset, then it is visible as an evening star.
6. Telescope is used to observe rings of the planet saturn.
7. Orion is a kind of constellation that can be seen during the winter.
8. On the fifteenth day after the full moon day, the moon is not visible, and this day is known as new moon day.

WORKSHEET – 91

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The time taken by a planet to complete one revolution is called its period of revolution.
2. The sunlight takes 8.3 minutes to reach the earth.
SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. Sometimes venus appears in the eastern sky before sunrise. Similarly, sometimes it appears in the western sky just after sunset. Therefore, it is often called a morning or an evening star, although it is not a star.

2. (a) Pole star does not appear to move in the sky.
   (b) Planet like neptune is the farthest from the sun.

3. (a) Halley’s comet which reappears after 76 years.
   (b) Venus (Shukra) is the brightest planet in the night sky.

4. There are no stars which move in sky but appear to be moving. They appear to move from east to west because the earth rotates from west to east around its axis.

5. (a) — (iv)
   (b) — (iii)
   (c) — (ii)
   (d) — (i).

6. (a) Phases of the moon occur because we can see only that part of the moon which reflects light towards us.
   (b) Mercury is the smallest planet in size.

7. (a) — (F)
   (b) — (F)
   (c) — (T)
   (d) — (T).

8. (a) Ursa major can only be seen through large telescopes.
   (b) Saturn has less density than that of water.

9. Sketches have to be drawn by students.

WORKSHEET – 92

SHORT ANSWER TYPE QUESTIONS (2 MARKS)

1. (a) As compared to mercury, venus contains high percentage of carbon dioxide, so, the greenhouse effect occurs more by trapping the infrared rays of the sun. That is why, venus is hotter than mercury.
   (b) 1 light year = $9.46 \times 10^{12}$ km.

WORKSHEET – 94 (FORMATIVE ASSESSMENT)

MCQs

1. (a) 2. (c)
3. (c) 4. (c)
5. (a)
DO AS DIRECTED
1. Venus
2. Moon
3. Sunita Williams
4. T
5. T
6. F.

ANALOGY TYPE QUESTIONS
1. Pluto
2. No satellite
3. Mercury
4. Sputnik-I
5. Ursa Minor.

ONE WORDS SUBSTITUTION
1. Pole star
2. Proxima centauri
3. Mercury
4. Mercury
5. Constellation.

QUIZ
1. Saturn (30)
2. Seven
3. Sirius.

CHAPTER - 18 (POLLUTION OF AIR AND WATER)

WORKSHEET – 95

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

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. The surface of groundwater supply is water table.
2. A lead compound is added to petrol to prevent engines from ‘knocking’.
3. Van Mahotsav gets start to plant lakhs of trees in the month of July every year.
4. CFCs destroy the ozone layer which protects us from harmful ultraviolet rays of the sun.
5. When rain is mixed with sulphuric acid, then it forms acid rain.
6. The industrial waste should be treated before discharging into the rivers.
7. Taj Mahal located at Agra has been affected by air pollution.
8. Two causes of soil pollution are excessive use of chemical and disposal of waste materials.
9. Smokes and dust arise from forest fires and volcanic eruptions are added from natural sources.
10. Water harvesting is a very successful method of conserving groundwater.
WORKSHEET – 96

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)
1. Carbon monoxide is produced by incomplete combustion of fuels such as petrol and diesel.
2. Suspended particulate matter reduces visibility and if inhaled causes respiratory diseases.

SHORT ANSWER TYPE QUESTIONS (2 MARKS)
1. (a) The trapping of heat radiations of the sun by the earth’s atmosphere is known as greenhouse effect.
   (b) Sulphur dioxide (SO₂) is produced from industries by combustion of fuels such as coal in power plants.
2. The given statement is not correct because clear and transparent water may contain disease-carrying microorganisms which cannot be seen by eyes. In order to make it potable water, we should boil it.
3. Pure air means air which does not have any undesirable gases and particles. It does not affect living or non-living things.
   Polluted air contains harmful pollutants which affect living or non-living things.
4. Acid rain corrodes the marble of the monument. The phenomenon is also called “Marble Cancer.” Suspended particulate matter, such as the soot particles emitted by Mathura oil refinery, has contributed towards the yellowing of the marble.
5. Two ways to conserve water are:
   (i) By planting more trees and grass.
   (ii) By constructing dams and river embankments.
6. Our main strategy should be to develop technology that uses:
   (i) Renewable sources of energy like solar energy, wind energy, etc., and avail maximum benefit from them.
   (ii) Less amount of non-renewable sources of energy, so that they could last longer.
7. Fertilisers enhance crop yield but these chemicals dissolve in water and get washed into water bodies from the fields. These seep into the ground to pollute groundwater.
8. Untreated sewage seeps into the groundwater. Since it contains bacteria, viruses, fungi and parasites, it can cause diseases like cholera, typhoid and jaundice.
9. (a) Smog is produced by the combination of oxides of nitrogen with other pollutants and fog.
   (b) Taj Mahal is being spoilt by acid rain and suspended particulate matter.
10. Ganga Action Plan was started (launched) in 1985 to save the river from polluted substances. It aimed to reduce the pollution levels in the rivers.

WORKSHEET – 99 (FORMATIVE ASSESSMENT)

MCQs
1. (c) 2. (a) 3. (c) 4. (b) 5. (d).
DO AS DIRECTED
1. Acid rain
2. Chlorine
3. Water
4. T
5. F
6. T.

ANALOGY TYPE QUESTIONS
1. Physical
2. Physical
3. Acid rain
4. Tap water
5. Polluted water.

CROSSWORD PUZZLE
Across
1. Dysentery
2. Ozone
3. Ganga
4. Smog
5. Nitrogen

Down
2. Ozone
4. Smog

QUIZ
1. Chlorofluorocarbons
2. Air pollution
3. LPG and CNG
4. Sulphur dioxide and nitrogen dioxide
5. Yes, cholera is water-polluted disease.