Goa Board
Class VII Science
Sample Paper – 2 Solution
Term II

SECTION A

1. (d)
Sphygmomanometer is used to measure the blood pressure.

2. (b)
Seed formation takes place during sexual reproduction in plants. Cutting, grafting and tissue culture are methods of propagating plants asexually.

3. (a)
The excreta is allowed to flow into a biogas plant through covered drains and thus, biogas is produced which can be used as a fuel.

4. (b)
Water and minerals are absorbed by roots from the soil. The movement of water and minerals together is called ascent of sap.

5. (b)
Deforestation is the process of cutting more and more tress from the forests to accommodate growing population and to provide space for industries.

6. (a)
Oxygen is a renewable resource because it is continuously supplied by plants during photosynthesis.

7. (b)
In the method of galvanization, surface of iron is coated with a layer of more active metal like zinc.
Zinc metal prevents the surface of iron from coming in the contact with air and moisture and thus, protects it from rusting.

8. (a)
In a chemical change, new products are formed. The new substances formed have properties entirely different from the original substances.
$Ca(OH)_2 + 2\,HCl \rightarrow CaCl_2 + 2\,H_2O$

9. (b)

In addition to new products, the following may accompany a chemical change - emission or absorption of heat, emission of light, colour change , sound may be produced or a gas may be released.

10. (d)

When an iron object is exposed to air and moisture, it chemically reacts to form a flaky reddish brown layer of hydrated iron (III) oxide, known as rust on its surface.

11. (a)

Burning of a magnesium ribbon is a chemical change. When magnesium ribbon is held over the flame of a burner, it burns with a dazzling white light to give a new substance called magnesium oxide.

$$2Mg + O_2 \rightarrow 2MgO$$

Magnesium Oxygen Magnesium oxide

12. (d)

Boiling of water, melting of ice and lightning of bulb is a physical change. No chemical reaction takes place and no new products are formed. However, rusting of iron is a chemical change. Iron article chemically reacts with air and moisture to form a flaky reddish brown layer of hydrated iron (III) oxide, known as rust.

13. (a)

Digestion of food is a chemical change because of chemicals such as acids and enzymes involved in digestion which break down complex food molecules such as carbohydrates, fats and proteins into simple soluble substances such as glucose, fatty acids and amino acids.

14. (d)

The filament of an electric bulb is made of a thin wire of tungsten.

15. (d)

Compact fluorescent lamps (CFLs) reduce wastage of electricity and can be fixed in ordinary bulb holders.

16. (d)

A current carrying coil of an insulated wire wrapped around a piece of iron is called an electromagnet.

17. (a)

Fuses work on the heating effect of electric current.

18. (b)

A non-luminous object does not produce its own light, but reflects light from other sources.

19. (b)

An image formed by a plane mirror is erect and of the same size as the object.

20. (d)

Violet, indigo, blue, green, yellow, orange, red.

SECTION B

21. Septic tanks are low cost onsite sewage disposal systems suitable for places where there is no sewerage system. It can be used for hospitals, isolated buildings or a cluster of 4 to 5 houses.

22. The process of seeping of water into the ground is called infiltration.

The rainwater and water from other sources such as rivers and ponds seeps through the soil and fills the empty spaces and cracks deep below the ground.

23.

(a) Mango, apple and orange. (Any two)

(b) Castor and balsam

24. The dense bushes and the tall grasses in forests provide the herbivorous animals with food and shelter. They also protect them from carnivores that live in the forest.

25.

i. Melting of ice: During this change, the water changes from its solid state to liquid state and it can be solidified again. Hence, this is a reversible change.

ii. Lightening of an electric bulb: During this change, electricity is passed through the filament which becomes white hot and glows, but when the switch is off, the filament returns to its original shape and condition; hence, it is reversible.

26. The chemical reaction of iron with oxygen in the presence of water vapour to produce iron (III) oxide (rust) is known as rusting. Rusting of iron is a chemical change.

27. Iron is coated with chromium to prevent rusting. It is called chrome-plating. Chromium metal is resistant to the action of air and moisture. So, when a layer of chromium is deposited on an iron object, the iron object is protected from rusting.

28. Light has a dual nature as it exhibits the properties of both, waves and particles depending on the situation.

29. A combination of two or more cells is called a battery. Some devices which use battery are - torches, transistors, toys and TV remote controls.

30. A spherical mirror is that mirror whose reflecting surface is a part of a hollow sphere of glass. In a concave mirror, the reflecting surface is the bent-in surface.

SECTION C

31.

(a)

i. This is because the pulmonary artery carries blood away from the heart and not towards it like a vein does.

ii. Since the blood flows through arteries rapidly at a high pressure, the arteries have thick elastic walls.

iii. The red blood cells contain a red pigment called haemoglobin. The presence of haemoglobin makes blood appear red.

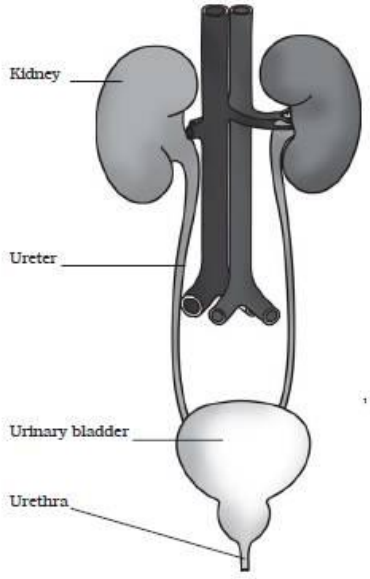
(b) Platelets form a network of cells on the cut or wound and thus, form a blood clot.

32.

(a) Drip irrigation is a technique of watering plants by making use of narrow tubings which deliver water directly at the base of the plant. Water falls drop by drop just at the position of the roots. Hence, water is not wasted at all. Thus, it proves advantageous in regions of water scarcity.

(b) Leaking of water supply pipes cause a lot of water gushing out of the pipes; thereby, leading to wastage of water.

33.



(Label any two parts)

34.

(a)

i. Wind, water and animals are the agents of seed and fruit dispersal.

ii. The fruits or seeds dispersed by water usually develop floating ability in the form of spongy or fibrous outer coat. Example - Coconut.

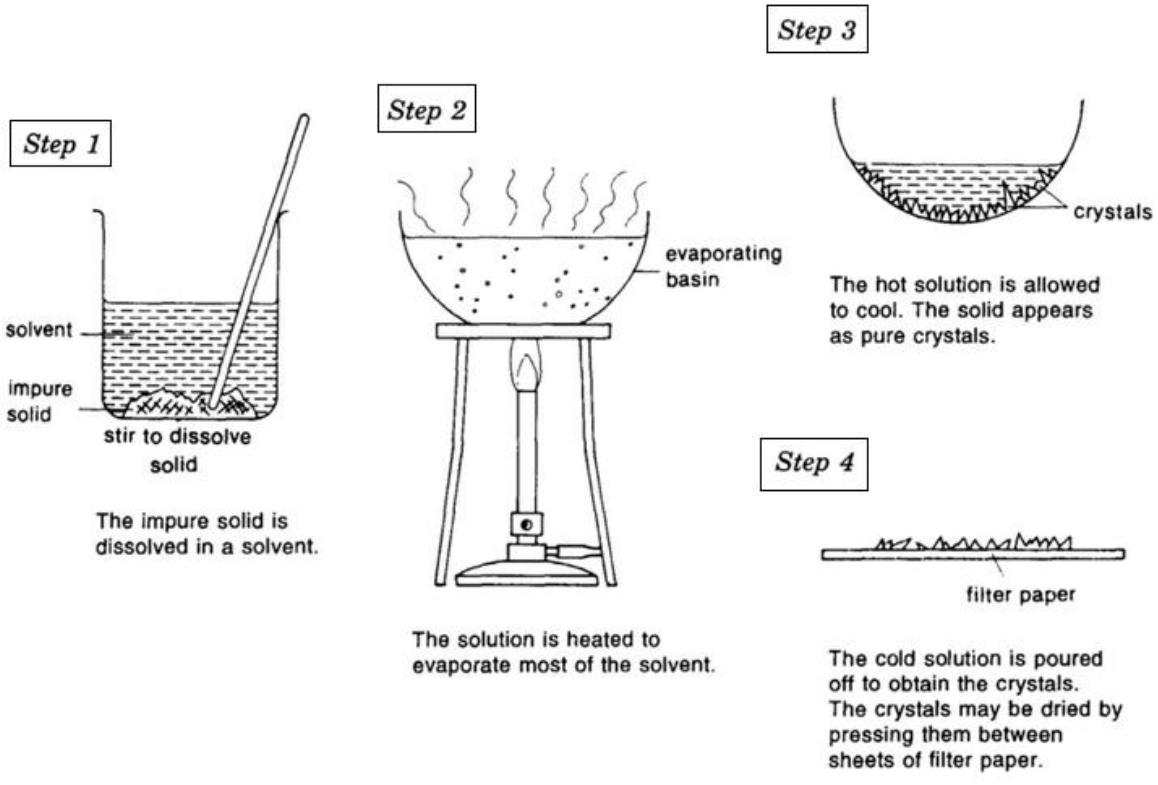
(b) The whole process of producing better seeds or crops from the existing seeds or plants is called hybridisation.

35.

(a) Crystallisation is the process of obtaining large crystals of pure substances from their solution.

(b) Crystallisation of salt solution:**Procedure**:

- Take a pot of boiling water and add table salt while stirring to make a salt water solution (impurities, if insoluble, remain undissolved).
- Continue adding salt until no more salt will dissolve in the solution. This is a saturated solution.
- Filter the solution to separate pure salt which is in dissolved form from impurities.
- Allow it to cool. Do not disturb the solution while it cools down. After some time, you will observe pure salt crystals formation in the solution and crystals will start to grow.
- The crystals of salt can then be collected and allowed to dry.



36.

(a) When an iron object is exposed to air and moisture, a flaky reddish brown layer of hydrated iron (III) oxide is formed on its surface. This substance is called as rust and the process of its formation is called rusting.

This is the only change that effects iron articles and slowly destroys them. Since iron is used in making bridges, ships, cars, truck and many other objects. Rusting weakens the structures of iron objects and cuts short their life. Following is the chemical equation to show the process of rusting of iron:

$$Fe + O_2 + H_2O \rightarrow Fe_2O_3$$

Iron, Oxygen (From the Air), Water, Rust (Iron oxide)

(b) Rusting of iron is considered a chemical change because a new substance called iron oxide is formed in this process.

37.

i. Lime water is calcium hydroxide solution.

ii. When the gas evolved is passed through lime water, it turns milky.

iii. The turning of lime water milky shows the presence of carbon dioxide because when Carbon dioxide (CO_2) is passed through lime water, white solid substance called calcium carbonate is formed which makes lime water milky.

iv.

$$CH_3COOH + NaHCO_3 \rightarrow CO_2 + CH_3COONa + H_2O$$

Acetic acid (Vinegar), Sodium hydrogen carbonate (Baking soda), Carbon dioxide, Sodium acetate, Water

$$CO_2 + [Ca(OH)_2] \rightarrow CaCO_3 + H_2O$$

Carbon dioxide, Lime water, Calcium Carbonate, Water

38.

(a) The concave mirrors are used as reflectors because when lighted bulb is placed at the focus of a concave reflector, it produces a powerful beam of light rays which helps us to see things up to a considerable distance in the darkness of night.

(b) Violet light bends the most and red light bends the least while passing through a prism.

39.

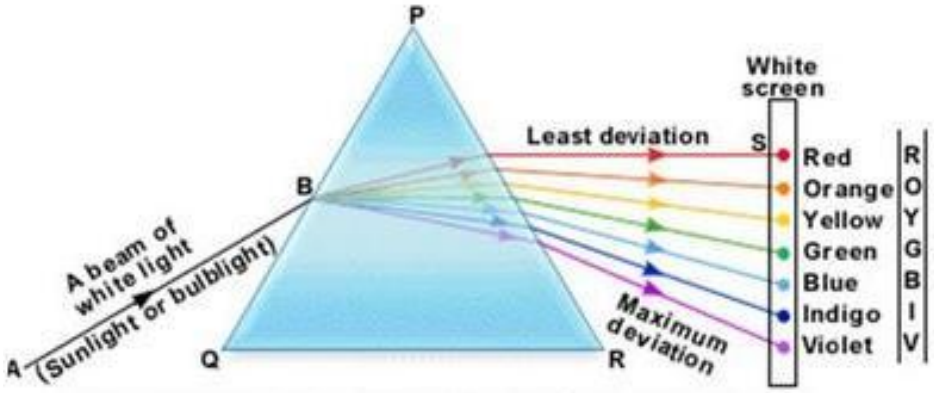
(a) The short circuiting may occur due to the touching of live wire and neutral wire directly. Overloading may be due to the flow of excessive current when many devices are connected to a single socket.

(b) Advantages of electromagnets over permanent magnets are:

i. The magnetism of an electromagnet can be switched on or switched off as desired. This is not possible with a permanent magnet.

ii. An electromagnet can be made very strong by increasing the number of turns in the coil, and by increasing the current passing through the coil. On the other hand, a permanent magnet cannot be made so strong.

40.



SECTION D

41.

(a)

i. Rainwater harvesting can reduce flooding in city streets.
ii. Sea water intrusion in coastal areas can be arrested.
iii. The ground water can be recharged and conserved.
iv. Rainwater harvesting can reduce topsoil loss.
v. It can improve plant growth.

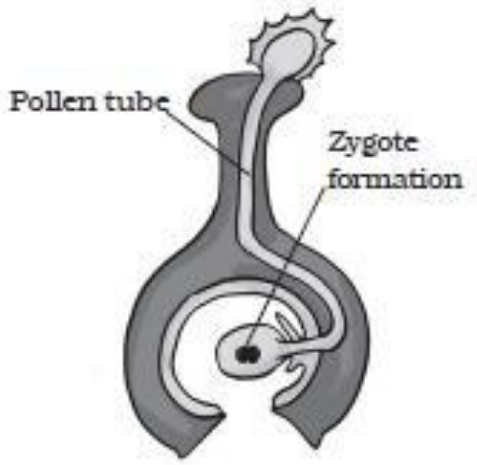
(Any three)

(b) Bawri was the traditional way of collecting water. With time the bawris fell into disuse and garbage started piling in these reservoirs. However due to acute water shortage, people in these areas began reviving these bawris and managing their water needs well, inspite of scanty rains.

42.

(a) Some seeds are dispersed by animals, especially spiny seeds with hooks. They get attached to the bodies of animals and are carried to distant places. Examples are Xanthium and Urena.

(b)



Fertilisation (Zygote formation) in plants

43.

(a) Characteristics of chemical changes:

i. These involve change in physical properties as well as the chemical composition of the substances.

ii. These changes may be accompanied by the evolution of heat and light. Sound also may be produced in some cases.

iii. These changes are permanent and cannot be reversed i.e. irreversible.

iv. These changes may also involve evolution of a gas or formation of a precipitate along with the change in colour, smell and physical state.

(b) Chemical changes are very important in our lives. All new substances are formed as a result of chemical changes.

For example,

- If a metal is to be extracted from an ore, such as iron from iron ore, we need to carry out a series of chemical changes.
- A medicine is the end product of a chain of chemical reactions. Useful new materials, such as plastics and detergents, are produced by chemical reactions.
- Energy is obtained by burning fuels like coal, petrol, wood and kerosene etc.
- Burning of fuels is a chemical change accompanied by evolution of heat and new products

44.

(a)

i. Bulb

ii. Switch in 'ON' position

(b) There is a maximum limit for the current to flow through the circuit. If accidentally, the current exceeds the safe limit, the wire may become overheated and may cause fire. In this case, the fuse wire blows off and breaks the circuit thus prevents the damages to electrical circuit.