Goa Board
Class VIII Science
Term 1
Sample Paper – 4 Solution

Time: 3 hrs **Total Marks: 100**

SECTION A

1. **Ans.** Correct Option: [D]
   Solution: Plants cannot fix atmospheric nitrogen directly.

2. **Ans.** Correct Option: [C]
   Solution: Cod liver oil is obtained from fish and is healthy.

3. **Ans.** Correct Option: [B]
   Solution: Chemical fertilisers may get washed into water bodies through a process called leaching.

4. **Ans.** Correct Option: [D]
   Solution: Swelling of the face is not associated with food poisoning.

5. **Ans.** Correct Option: [B]
   Solution: The clearing of forests results in loss of shelter for animals, due to which they have to find new homes. Hence, their survival will be affected.

6. **Ans.** Correct Option: [B]
   Solution: The indiscriminate killing of snakes leads to loss in the production of food grains.

7. **Ans.** Correct Option: [B]
   Solution: Low-density polyethylene (LDPE) is used for making polybags, grocery bags and packaging of foods and bread. LDPE is a thermoplastic.

8. **Ans.** Correct Option: [A]
   Solution: Cellulose is a natural polymer found in plants and hence can be easily decomposed.

9. **Ans.** Correct Option: [C]

   Solution: $Fe + 2HCl \longrightarrow FeCl_2 + H_2$

10. Ans. Correct Option: [A]
Solution: This is because both Na and Mg displace zinc from zinc sulphate solution. So, both are more reactive than zinc. However, Na displaces Mg from its salt solution, so Na is more reactive than Mg.

11. Ans. Correct Option: [C]
Solution: Silver is less reactive than iron, so it cannot displace iron from its solution. Hence, no reaction will occur.

12. Ans. Correct Option: [B]
Solution: Anthracite coal has 92–98% carbon content. It is regarded as the highest grade of coal.

13. Ans. Correct Option: [A]
Solution: Paraffin wax is used to make candles.

14. Ans. Correct Option: [C]
Solution: Both the speed and the direction of motion of the object may change on applying force.

15. Ans. Correct Option: [A]
Solution: Smaller the area, larger is the pressure for the same force (P = F/A).

16.Ans. Correct Option: [A]
Solution: The magnetic strips used in the refrigerator door help to keep it closed tightly.

17. Ans. Correct Option: [D]
Solution: All the given methods can be used to decrease friction.

18. Ans. Correct Option: [B]
Solution: A dry lubricant such as talcum powder should be used to reduce friction on a carrom board.

19. Ans. Correct Option: [D]
Solution: The length of the vocal cord decides the pitch of the voice. Hence, the voices of men, women and children vary.

20.Ans. Correct Option: [D]
Solution: The sound wave is a form of energy, and it dissipates in all the directions like any other form of energy.

SECTION B

21. Ans. Forests are important for us because
(i) They purify the air and control air pollution.
(ii) They help in replenishing groundwater.

22. Ans.
(i) It is the best technique for watering fruit plants, gardens and trees in the regions of water scarcity.
(ii) Because water is supplied drop by drop at the position of the roots, there is no water wastage.

23. Ans. The grains are dried in the Sun to remove as much moisture as possible. They are then weighed and packed in gunny bags or bins.

24. Ans. Destroying mosquitoes can prevent the spread of malaria as the female Anopheles mosquito is a vector which carries Plasmodium from a diseased person to a healthy person.

25. Ans. We should not wear fabrics made of synthetic fibres in hot summer weather because most of the synthetic fibres absorb little moisture. Thus, they become sticky when the body sweats which makes them uncomfortable to wear in hot weather.

26. Ans.
(i) When a piece of copper is placed in an iron sulphate solution, no change will be observed. This is because copper is less reactive than iron; therefore, it is unable to displace it from its solution.

(ii) $Cu + AgNO_3 \longrightarrow CuNO_3 + Ag$

27. Ans. Advantages of using CNG:
(i) It is a clean fuel and does not cause much pollution.
(ii) It can be directly supplied to homes and industries through pipelines.

28. Ans. Muscular force is involved in the bending of our body. Activities like jumping and climbing require muscular force.

29. Ans. Most fish have a streamlined body shape which helps them to move through water easily without facing much friction from water.

30. Ans. Different sounds of same loudness can be recognised by recognising the frequencies. This is how we identify a voice of a child, women and man, even when they speak with the same loudness.

SECTION C

31. Ans.

(i)

(a) Desertification
(b) Global warming
(c) Deforestation

(ii) Carbon dioxide traps the heat rays reflected by the Earth and causes global warming by increasing the temperature on the Earth.

32. Ans.

(i) Weeds compete with the crop plants for water, nutrients, space and light. Thus, they affect the growth of the crop and reduce the yield of crop plants.

(ii) A combine is a combined harvester and thresher. It is used for threshing.

33. Ans.

(i) Vaccine
(ii) Antibiotics
(iii) Fermentation
(iv) Manure

34. Ans.

(i)

(a) A few nitrogen-fixing bacteria like Rhizobium and certain blue-green algae can fix atmospheric nitrogen into usable forms like nitrates and nitrites.
(b) Sometimes nitrogen gets fixed due to the high temperatures and pressures during lightning, thereby creating usable forms of nitrogen.

(ii) Herbivores feed on plant parts and obtain the plant proteins and other nitrogen compounds from them which they use for building nitrogen compounds in their own bodies.

35.Ans.

(i)

Thermoplastics	Thermosetting plastics
1. They can be softened repeatedly by heating and can be moulded into different shapes again and again.	1. Once set, they do not become soft on heating and cannot be moulded a second time.
2. They can be used for making articles which do not get too hot and are flexible.	2. They are used for making articles which may get too hot during use and are hard and rigid.

(ii) Thermoplastics: Polythene and polyvinyl chloride (PVC)
Thermosetting plastics: Melamine and Bakelite

(iii) It is because of the lower price, easy availability, lightweight, durability and corrosion resistance of plastic that plastic containers are preferred for storing food.

36.Ans.

Metals	Non-metals
1. Metals form basic oxides. 2. Metals react with water (or steam) to produce hydrogen gas (except copper, silver and gold which do not react with water or steam). 3. Metals react with dilute acids to produce hydrogen gas (except copper, silver and gold which do not react with dilute acids). 4. Metals react with bases to form salts and hydrogen gas.	1. Non-metals form acidic oxides. 2. Non-metals do not react with water (or steam). 3. Non-metals do not react with dilute acids. 4. Non-metals react with bases, but no hydrogen gas is produced.

37. Ans.

(i) Many useful chemicals (or substances) are obtained from petroleum and natural gas. Those chemicals which are obtained from petroleum and natural gas are called petrochemicals. Some examples of petrochemicals are methyl alcohol, ethyl alcohol, formaldehyde, acetone, acetic acid, ethylene, benzene, toluene, vinyl chloride and hydrogen.

(ii) Petrochemicals are important because they are used to manufacture a wide range of useful materials such as detergents, synthetic fibres (like polyester, nylon, acrylic etc.), plastics (such as polythene, polyvinyl chloride, bakelite etc.), synthetic rubber, drugs, dyes, perfumes, fertilisers, insecticides and explosives. Hydrogen gas obtained from natural gas is used in the manufacture of fertilisers (such as ammonium nitrate and urea). Thus, petroleum is not only a source of fuel but also a raw material (in the form of petrochemicals) to manufacture a large number of useful substances.

38. Ans.

(i)

(a) The gravitational force of the Earth keeps us bound to the Earth.

(b) Gravitational force between the Earth and the Sun makes the Earth move around the Sun.

(c) Gravitational force between the Moon and the Earth makes the Moon go around the Earth.

(ii) Yes. Muscular force needs to be in contact with the body on which it acts, so it is a contact force.

39. Ans.

(i) The tyres of vehicles have treads in them to increase the friction between the tyre and the road and to prevent skidding.

(ii) We are able to cut wood because there is friction between the saw blade and the log of wood. If there was no friction between the saw blade and the log of wood, then the cutting of wood would not be possible.

40. Ans.

(i) Sound travels fastest in solids because molecules in a solid do not move far from their mean position and bounce back quickly, whereas liquids and gases are poor transmitters.

(ii) This is because radio waves can travel through vacuum. They are electromagnetic waves such as light rays, UV rays and X rays.

SECTION D

41. Ans.

(i) In a drip irrigation system, there is a network of narrow pipes (or tubes) with small holes in the fields. When water flows through the narrow pipes, it falls drop by drop at the position of the roots of the plants. This water is absorbed by the soil in the root zone of the plants and utilised by the plants. There is no run-off (or wastage) of irrigation water. The drip system is the best technique for watering (or irrigating) fruit plants, trees and gardens.

(ii) The drip irrigation system has the following advantages:

(a) The drip system provides water to plants drop by drop. So, water is not wasted at all.

(b) It minimises the use of water in agriculture. So, the drip system of irrigation is useful in those regions where the availability of water is poor.

42. Ans. The main steps in the nitrogen cycle are

(i) The atmosphere (or air) contains nitrogen gas. The nitrogen-fixing bacteria (present in the soil and in the root nodules of leguminous plants), blue-green algae and lightning in the sky fix nitrogen gas from the atmosphere and convert it into usable compounds of nitrogen which go into soil.

(ii) The plants take up compounds of nitrogen from the soil for their growth. The plants absorb the nitrogen compounds from the soil through their roots and convert them into plant proteins and other organic compounds which make up the body of plants.

(iii) The plants are eaten up by animals as food. Animals convert plant proteins into animal proteins and other organic compounds which make up their body. Some animals also eat other animals to obtain nitrogen compounds. Thus, animals obtain nitrogen compounds by eating plants as well as other animals.

(iv) When plants and animals die, the complex nitrogen compounds (e.g. proteins) present in their dead bodies are decomposed and converted into simple compounds of nitrogen by certain bacteria and fungi present in the soil. Animal excretions (e.g. urine) are also converted into simple compounds of nitrogen. All the simple compounds of nitrogen formed in this way go into the soil.

(v) Some of the compounds of nitrogen (formed from the decay of dead plants and animals) are decomposed by denitrifying bacteria present in the soil to form nitrogen gas. This nitrogen gas goes back into the atmosphere. In this way, the nitrogen gas which was removed from the atmosphere during fixation is put back and returned to the atmosphere.

43.Ans. Add 10 ml of dilute hydrochloric acid to each test tube and warm the test tubes gently. Test the gas produced in each test tube by bringing a lighted matchstick (or burning matchstick) near the mouth of each test tube.

(i) When we bring a lighted matchstick near the mouth of the first test tube containing a piece of magnesium ribbon and dilute hydrochloric acid, the gas produced burns with a 'pop' sound, showing that it is hydrogen.

(ii) When we bring a lighted matchstick near the mouth of the second test tube containing a piece of aluminium foil and dilute hydrochloric acid, the gas burns with a 'pop' sound, showing that it is hydrogen.

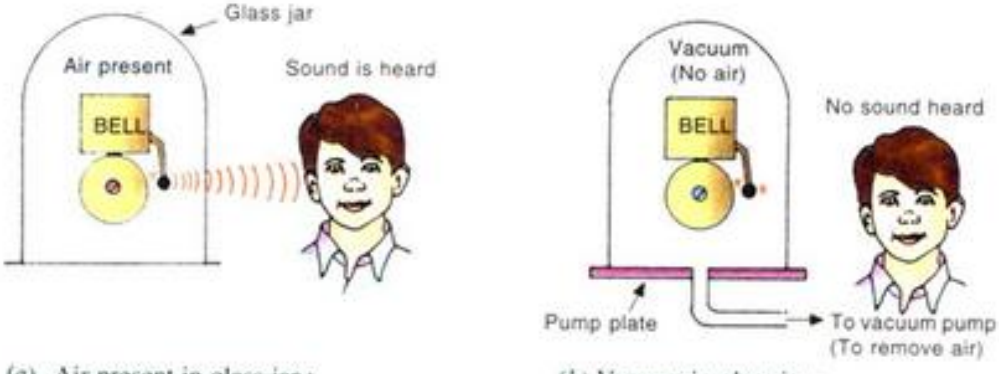
(iii) When we bring a lighted matchstick near the mouth of the third test tube containing iron filings and dilute hydrochloric acid, the gas burns with a 'pop' sound, showing that it is hydrogen.

(iv) When we bring a lighted matchstick near the mouth of the fourth test tube containing a piece of copper wire and dilute hydrochloric acid, nothing happens, showing that no hydrogen is produced in this case.

This activity shows that although magnesium, aluminium and iron metals react with dilute hydrochloric acid to produce hydrogen gas, copper metal does not react with dilute hydrochloric acid to form hydrogen gas.

44. Ans. Activity to demonstrate that sound cannot travel through vacuum:

(i) A ringing electric bell is placed inside an airtight glass jar containing air as shown in Figure (a). We can hear the sound of the ringing bell clearly. Thus, when air is present in the glass jar, the sound can travel through it and reach our ears.



(*a*) Air present in glass jar : Sound of bell is heard

(*b*) Vacuum in glass jar : Sound of bell is not heard

(ii) The glass jar containing the ringing bell is placed over the plate of a vacuum pump [Figure (b)]. Air is gradually removed from the glass jar by switching on the vacuum pump. As more air is removed from the glass jar, the sound of ringing bell becomes fainter and fainter. When all the air is removed from the glass jar, no sound can be heard at all, though we can still see the clapper striking the bell. Thus, when vacuum is created in the glass jar, the sound of the ringing bell placed inside

it cannot be heard. This shows that sound cannot travel through vacuum and reach our ears.

(iii) If air is now put back into the glass jar, the sound of the ringing bell can be heard again. This shows that air is necessary for the sound to travel from the ringing bell to our ears.