

Maharashtra State Board

Class VII Science

Sample Paper – 1

Solution

I.

1. (b)

Compound	Molecular formula
Potassium hydroxide	KOH
Copper sulphate	CuSO ₄
Iron chloride	FeCl ₂

2. (d)

The Ministry of Renewable Energy of the Government of India observes 20th August as Akshayya Urja Din to make people aware of the importance of the alternative sources of energy.

3. (a)

The dark black region of the shadow is called umbra, while the faint region is called penumbra.

4. (c)

The mass of a unit volume of a substance is called the density of the substance. One litre of water has a mass of 1 kg. Hence, the density of water is 1 g/cc.

5. (d)

A group of cells performing the same function in an organism constitute a tissue. Different kinds of tissues together constitute an organ. A group of organs which together carry out a specific function in the body constitute an organ system. Individuals that belong to the same species constitute a population.

6. (a)

When the pollen grains from the androecium of a flower fall on the stigma of the gynoecium, they begin to grow there. This process of reproduction in plants is called pollination.

7. (b)

Human blood is of four types—A, B, AB and O.

8. (d)

Convection occurs only in fluid media, i.e. in liquids and gases.

9. (c)

Carbohydrates are broken down into glucose after digestion. The glucose is used to produce energy.

10. (b)

Vitamin/Mineral	Deficiency disease
Vitamin D	Rickets
Iron	Anaemia
Iodine	Goitre

11. (a)

Different stages in the process of growth are production of a new organism, the growth of the parts of the new organism and the differentiation of the parts to form definite organs of the body.

12. (d)

P - Stomach, Q - Liver, R - Small intestine, S - Mouth

13. (a)

The speed of sound increases with an increase in temperature.

14. (b)

When a glass rod is rubbed with silk, the electrons are transferred from the glass rod to the silk cloth. As a result, the rod acquires a positive charge and the silk cloth acquires a negative charge.

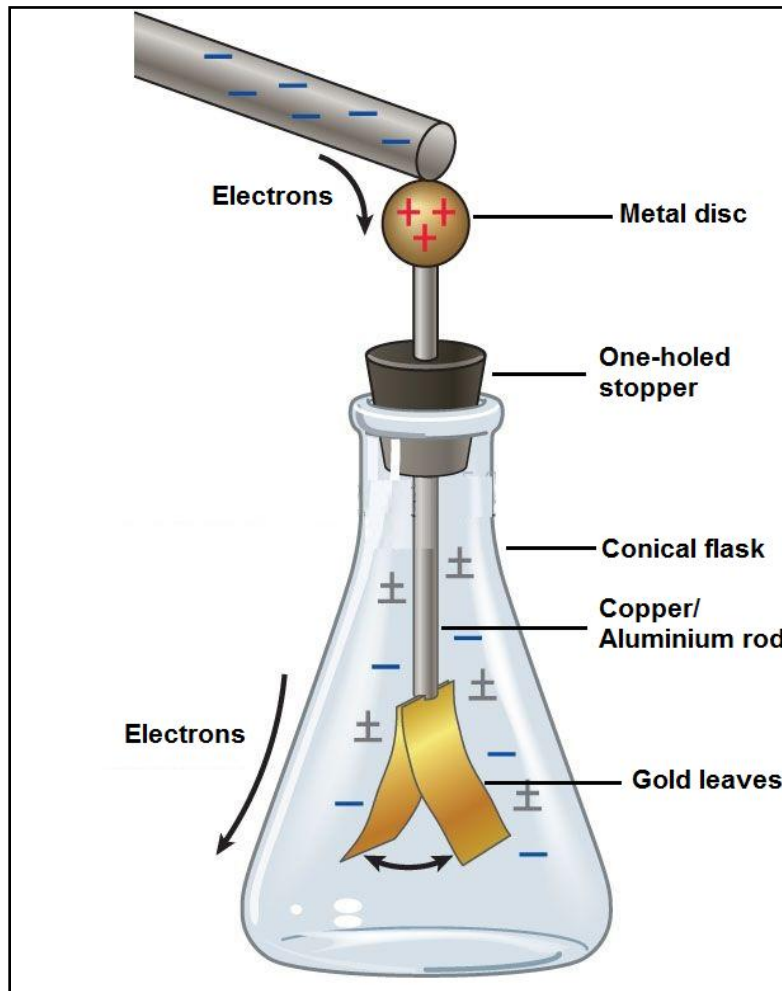
15. (d)

A layer of cetyl alcohol is sprayed on the surface of water to prevent evaporation of water from lakes. Cetyl alcohol being lighter than water spreads on the water surface and reduces evaporation.

II.**16. Differences between acids and bases:**

Acids	Bases
1. The main constituent is H.	1. The main constituent is OH.
2. Acids turn blue litmus red.	2. Bases turn red litmus blue.
3. They have a sour taste.	3. They have an astringent taste.
4. Acid solutions are not soapy to touch.	4. Basic solutions are soapy to touch.
5. Examples: Hydrochloric acid, acetic acid	5. Examples: Sodium hydroxide, calcium hydroxide

17. Gold leaf electroscope



18.

Column A	Column B
Cell division	<i>Amoeba</i>
Budding	Yeast
Fragmentation	<i>Spirogyra</i>
Sporogenesis	<i>Mucor</i>

19.

Right	Wrong
(b) Planting of trees along the roadside	(a) Use of chemical fertilisers
(c) Use of drip irrigation	(d) Throwing away stored water

20.

- (a) Calorie: The quantity of heat required to raise the temperature of 1 gram of water by 1°C is called a calorie (cal).
- (b) Specific heat: The quantity of heat required to raise the temperature of one unit mass of a substance by 1°C is called the specific heat of that substance.

III.

21.

- (a) Water shows anomalous expansion.
- (b) As the temperature increases above 0°C up to 4°C, its density increases.
- (c) The density of water is maximum at 4°C.
- (d) The surface layer of water in a reservoir freezes at 0°C. However, the temperature of water below the surface is 4°C and does not freeze.
- (e) Therefore, the aquatic animals can continue to live in the water below the ice.

22. Ill-effects of consuming intoxicating substances:

- (a) Cigarettes and bidis contain tobacco. The nicotine in tobacco has damaging effects on the brain and heart. Gases of the tobacco smoke cause damage to the lungs.
- (b) Smoking deposits tar in the lungs which may eventually cause cancer.
- (c) Chewing tobacco or gutkha can cause cancer of the mouth.
- (d) Drinking alcohol or taking drugs such as ganja and opium has harmful effects on the nervous system and may even prove to be fatal in extreme cases.

23. Functions of the circulatory system:

- (a) The soluble food constituents produced during digestion are absorbed by the blood. These constituents are then dissolved in the water and transported to various parts of the body.
- (b) The oxygen taken inside the body during respiration is absorbed in the blood circulatory system.
- (c) Chemicals such as enzymes and hormones synthesised in the body are transported to different parts of the body through the blood.
- (d) Waste products produced in each cell of the body are transported to the excretory system from where they are thrown out of the body.

24. Mercury is used in thermometers because of its following properties:

- (a) There is a large difference between the freezing point (39°C) and the boiling point (357°C) of mercury.
- (b) It is shiny and can be easily seen through glass.
- (c) It does not stick to the glass.
- (d) It expands regularly and uniformly in all conditions.

25. Characteristics of propagation of sound:

- (a) A medium is necessary for the propagation of sound.
- (b) Solids can be propagated through solids, liquids and gases.
- (c) Sound travels fastest in the solid medium and faster through the liquid medium as compared to the gaseous medium.

IV.

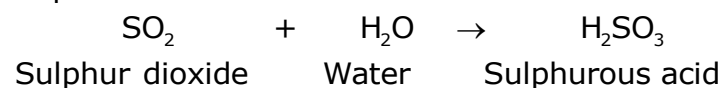
26.

- (a) Pure iron rusts in air containing moisture. However, steel does not rust because it is an alloy of iron and carbon. Steel has the toughness and strength of pure iron. Therefore, steel is preferred for making various items instead of iron.

(b)

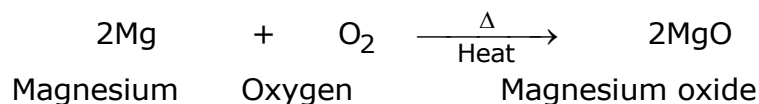
i. Action of water on sulphur dioxide

When water is added to sulphur dioxide, the gas dissolves in it forming sulphurous acid.



ii. Burning of magnesium ribbon in air

When magnesium ribbon is burnt in air, magnesium combines with oxygen in the air and forms magnesium oxide.

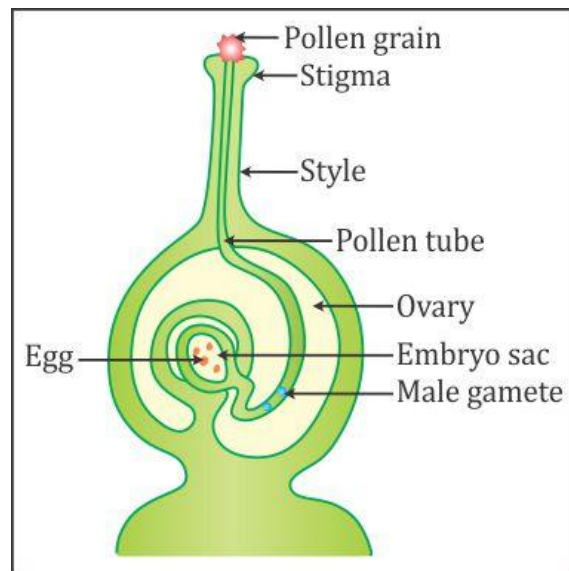


27. Various methods of preserving food:

- (a) Drying of grains
- (b) Boiling of milk, soups and curries
- (c) Refrigeration of vegetables, fruits and cooked food
- (d) Pasteurisation of milk
- (e) Treatment of onions/potatoes with gamma rays
- (f) Candying and making jams
- (g) Salting of pickles and papads
- (h) Use of chemical preservatives in sauces, jams and squashes
- (i) Use of natural preservatives such as oil and spices

28. Sexual reproduction in flowering plants:

- (a) In flowering plants, the flower is the reproductive organ which bears male and female parts.
- (b) The androecium is the male part of the flower. It consists of anther lobes in which pollen grains are produced.
- (c) The gynoecium is the female part of the flower which consists of the stigma and ovary.
- (d) When the pollen grains from the anther fall on the stigma of a flower, they begin to grow there. This process is called pollination. There is growth of the pollen tube from the pollen.



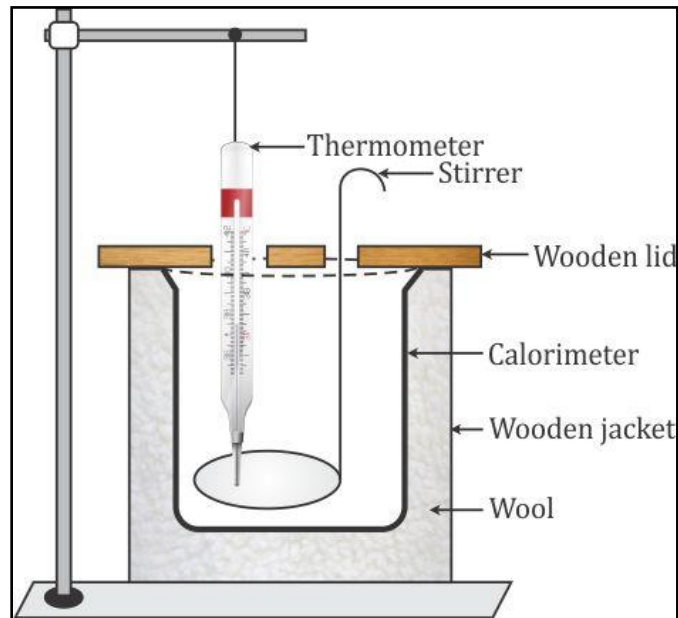
- (e) Male gametes are formed inside the pollen. They unite with the female gametes present in the ovary. This union of male and female gametes is called fertilisation.
- (f) After fertilisation, the zygote is formed, which later develops a fruit with seeds.
- (g) The seeds develop into new plants after they are sown in the soil.

29. Rainwater harvesting is the process of collection and reusing of rainwater. It is carried out in the following ways:

- (a) Water falling on the roofs of buildings is carried down through special pipes.
- (b) This water is then stored in tanks or pits in the ground. Rainwater is clean; it can be stored and used later without any treatment.
- (c) Even the water in the drains along the sides of the roads is made to seep into the ground.
- (d) All these steps help to raise the groundwater level. Water reserves can be replenished because of rainwater harvesting.

30. Construction of a calorimeter:

- (a) The calorimeter is a cylindrical copper container.
- (b) It consists of two vessels which are placed inside one another.
- (c) There is a space between the two containers. This space is filled with cork, sawdust or wool, which are bad conductors of heat.



- (d) The largest container has a lid made of either ebonite or wood, both of which are bad conductors of heat. This lid has two holes.
- (e) A stirrer is inserted through one hole, while a thermometer is inserted through the other hole.