

# Maharashtra State Board

## Class VIII Science

### Board Paper – 2

### Solution

#### I.

**1. (a)**

Isotopes of an element have the same atomic number but different atomic mass number.

**2. (c)**

The Sun, eight planets, Moon, planets and their satellites, asteroids, meteors, dwarf planets and comets together constitute the Solar System. The Pole Star is not a member of the Solar System.

**3. (a)**

During a combination reaction, two or more reactants combine to form a single product. The other reactions are decomposition reactions in which a reactant is broken down into two or more products.

**4. (d)**

The given cell organelle is the Golgi body. The Golgi body synthesises lysosomes.

**5. (d)**

We can conserve our natural resources by avoiding wastage of paper, planting more trees and turning off electrical appliances when not in use. All such measures can save our non-renewable natural resources and help conserve them for future generations.

**6. (b)**

Both tuberculosis and measles spread through air. They are air-borne diseases.

**7. (c)**

The largest wind energy farm is in Lamba, Gujarat.

**8. (b)**

A bar of steel can be permanently magnetised by rubbing a bar magnet along its length.

**9. (a)**

Methanol has a low boiling point as compared to ethanol. Therefore, the vapours of methanol first pass through the fractionating column and get collected in the conical flask.

**10. (b)**

Each carbon atom forms three bonds and consists of one electron which is not used in bonding. In graphite, this electron is delocalised or free to move and carries current. Therefore, graphite conducts electricity.

**11. (d)**

The fertility of the soil can be increased by altering the pH, air content of the soil and by the addition of fertilisers to the soil.

**12. (b)**

Acid rains bring about a change in the pH of water bodies. This results in the destruction of aquatic life, primarily fish, often resulting in their death.

**13. (b)**

When the switch is turned ON, the current flows through the circuit. Hence, a magnetic field is produced near the circuit because of which the needle shows a deflection. This deflection is retained as long as the current passes through the coil. When the current is switched OFF, the needle returns to its original position.

**14. (c)**

The figure shown is a hoe; it is used for removing weeds and for loosening the soil.

**15. (c)**

The pressure exerted by the atmosphere is known as atmospheric pressure. Atmospheric pressure on the top of a high mountain is lesser than at its base. Vacuum is a space entirely devoid of any matter.

**II.**

**16.** When the rubber sucker is pressed against a flat, smooth surface, its concave rubber cup gets flattened to a large extent, pushing out most air from beneath it. Therefore, the air pressure inside the rubber sucker becomes very low, and the much greater atmospheric pressure acting on it from outside fixes the sucker firmly on the flat surface.

**17.**

- (a) The Indian cow can be crossed with varieties such as Jersey, Holstein or Red Dean bull for better milk yield.
- (b) Cow varieties such as the Kandhari, Devani, Khilari and Dangi have been selected for cross-breeding from Maharashtra.



In the above reaction, CO gains oxygen and gets oxidised to carbon dioxide. Magnesium oxide loses oxygen and gets reduced to magnesium.

**19.** Sirius is the brightest star in the sky. To locate Sirius, imagine a straight line passing through the three middle stars of the Orion. Look along this line towards the east; it will lead us to Sirius.

**20.** Steps to conserve wildlife:

- (a) Maintaining the habitats of animals
- (b) Establishment of national parks, sanctuaries and biosphere reserves

### **III.**

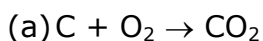
**21.** A magnetic compass is used:

- (a) To find the north-south direction
- (b) To find the direction of magnetic field at a place
- (c) To plot the magnetic field lines
- (d) To test the polarity of a magnet

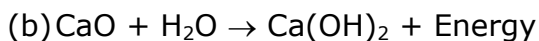
**22.** Features of the nuclear model of an atom put forward by Rutherford:

- (a) There is a positively charged centre in an atom called the nucleus. Nearly all the mass of an atom resides in the nucleus.
- (b) The electrons revolve around the nucleus in well-defined orbits.
- (c) The size of the nucleus is very small as compared to the size of the atom.

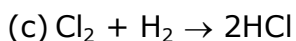
**23.**



It is an oxidation reaction as carbon combines with oxygen to form carbon dioxide.



It is an exothermic reaction as energy is released in the reaction.



It is a reduction reaction as hydrogen combines with chlorine to form hydrogen chloride.

**24.** Differences between cell wall and cell membrane:

<b>Cell wall</b>	<b>Cell membrane</b>
1. Thick and rigid	1. Thin and flexible
2. Made of cellulose	2. Made of proteins and lipids
3. Present in plants only	3. Present in both plants and animals

## 25. Enteritis:

### (a) Mode of infection:

- Contaminated food and water

### (b) Symptoms:

- Inflammation of the inner lining of the intestine
- Stomach ache
- Fever
- Vomiting
- Loss of appetite
- Diarrhoea or constipation
- Loss in body weight

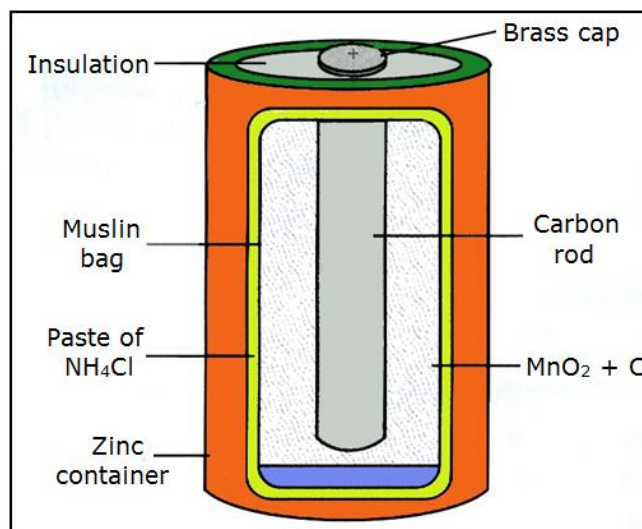
### (c) Preventive measures and treatment:

- Using clean and safe food and water
- Keeping food covered at all times
- Maintaining personal hygiene and cleanliness
- Giving proper medication

## IV.

### 26. Construction of a dry cell:

- (a) A dry cell consists of a zinc container with a small brass cap on one side of the cell [labelled as positive (+)] and a metal base at the other side of the cell [labelled as negative (-)].



- (b) The positive and negative sides of the cells are called positive and negative terminals of the cell, respectively.
- (c) A carbon rod is placed at the centre of the cell surrounded by a mixture of manganese dioxide (MnO<sub>2</sub>) and charcoal (C) in a muslin bag.
- (d) The electrolyte is a moist paste of ammonium chloride (NH<sub>4</sub>Cl), plaster of Paris and flour.
- (e) The outer body (except for the base) is a zinc container insulated with a thick cardboard or plastic material.

**27.**

(a) A chemical equation is a symbolic representation of a chemical reaction using symbols or formulae of reactants and products.

(b) Steps of writing a chemical equation:

- The molecular formulae of the reactants are written on the left-hand side of the equation.
- The molecular formulae of the products are written on the right-hand side of the equation.
- The reactant side and the product side are connected with an arrow pointing towards the product side.

**28. Uses of metals:**

(a) They are widely used to make cooking utensils.

(b) Copper wires are mainly used as conducting wires in electrical gadgets, radios and refrigerators.

(c) Gold, silver and tin are used to make coins and ornaments.

(d) Compounds of sodium such as common salt (sodium chloride), washing soda (sodium carbonate) and baking soda (sodium bicarbonate) are used for several purposes in our everyday life.

**29.**

(a) Vaccine

(b) Antibiotics

(c) Fermentation

(d) Manure

**30. Agricultural implements and their uses:**

<b>Agricultural implements</b>	<b>Uses</b>
Plough	Ploughing
Wooden board	Making the ploughed farm surface even
Seed drill	Sowing of seeds
Pickaxe	Digging farm lands
Spade	Pulling and spreading the soil in the farm
Scythe	Cutting during harvesting
Spraying pump	Spraying pesticides and other medicines for protecting crops