Class 08 cell structure and functions Eureka Plus Science Answer

1.Tick (√) the correct options.

1. A metal that is non-magnetic is

A. nickle.
B. cobalt.
C. iron.
D. Gold

2. If a substance does not react in dilute acid, it could be

A. Sodium
B. potassium.
C. phorus.
D. calcium.

3. The most abundant non-metal within the Earth's crust is

A. oxygen.
B. quartz.
C. phosphorus.
D. sulphur.

4. A non-metal that is highly lustrous is

A. carbon.
B. diamond.
C. graphite.
D. quartz.

5. When iron combines with oxygen, it forms

A. hydrogen gas.
B. rust.
C. precipitate.
D. non-metal.

6. The ability of a metal to be drawn into a wire is a measure of its

A. ductility.
B. malleability.
C. sonority.
D. reactivity.

7. At room temperature, mercury is

A. liquid.
B. solid.
C. gas.
D. non-metal.

8. Bronze is an alloy of

A. copper and tin.
B. iron and carbon.
C. aluminium and copper.
D. copper and gold.

Ans: I. 1. gold 2. phosphorus 3. oxygen 4. diamond 5. Graphite 6. ductility 7. liquid 8. copper and tin

II. Tick (✓) the true statements and cross (X) the false ones.

1. Metals are generally good conductors of heat and electricity.

2. Sodium can be stored under water.

3. Iron coating protects zinc.

4. Sulphur is a metal.

5. Metals react with oxygen to form metallic oxides.

6. Helium is a noble gas beta is very reactive.

7. Brass is a metal element.

8. Steel contains iron and carbon.

Ans: II. 1. ✓ 2 X 3. X 4. X 5. ✓ 6. X 7. X 8. ✓

III. Identify the substance.

1. …..... is a non-metal used in the vulcanisation of rubber.

2. ……. is used in making fertilisers.

3. …….. is used to make matchstick heads.

4. ……. crystals are used for keeping time in watches.

5. ……. is a non-metal that has a high melting point.

6. ……. metal is found in a pure state in nature.

7. ……..is the most abundant metal on the Earth.

8. ……. is a non-metal present in hair, eggs and wool.

9. ……..metal that is used to harden steel.

10. ---------- metal is used to galvanise iron.

Ans: III. 1. Sulphur 2. Phosphorus 3. Red phosphorus 4. Quartz 5. rust 6. Gold 7. Aluminium 8. Sulphur 9. Chromium 10. Zinc

IV . Answer the following questions in one sentence.

1. Which is denser—sodium or zinc?

2. Which has a higher melting point—a thin tungsten wire or a thick iron nail?

3. What will not react with an alkali—a copper sheet or an aluminium sheet?

4. Which is more reactive—sodium or lead?

5. Which is magnetic—iron wire or magnesium foil?

6. Which is harder---a piece of copper or a dimond?

Ans: IV.

1. Zinc is denser than sodium.

2. Tungsten has a higher melting point than iron.

3. Copper will not react with alkali.

4. Sodium is more reactive than lead.

5. Iron wire is magnetic.

6. Diamond is harder than copper.

V. Give reasons.

1. Good quality electric wires are made of copper.

2. Zinc is coated on iron objects.

3. Aluminium is used in building ships.

4. A copper bowl loses lustre after some time.

Ans: V. 1. Copper is a good conductor of electricity. Also it is cheaper as compared to other metals such as silver.

2. Zinc is coated on iron objects to prevent corrosion.

3. Aluminum is used in building ships because of its high tensile strength.

4. A copper bowl loses lustre after some time because it reacts with oxygen in air and forms a black layer of copper oxide.

VI. Answer the following questions in detail.

1. Slate any four physical properties of Metals.

Ans: Metals are malleable. They can be made into sheets. For example, aluminium foil. Metals are ductile. They can be drawn into thin wires. For example, copper wire. Metals are solids at room temperature. Mercury, which is a liquid at room temperature: is an exception. Most metals have high densities. Sodium and potassium are exceptions.

2. How is rust formed?

Ans: Rust is formed when iron reacts with atmospheric oxygen in the presence of water or water vapour. The product formed is iron oxide, commonly known as rust. Iron objects lying in open places tend to accumulate rust on the surface. The equation is:

$$\text{Iron} + \text{Oxygen} \xrightarrow{\text{water}} \text{Iron oxide}$$

$$4Fe + 3O_2 \xrightarrow{\text{water}} 2Fe_2O_3(\text{Iron oxide})$$

3. Explain the reaction between sodium and water.

Ans: 3. Sodium reacts vigorously with water giving out a lot of heat to form a colourless solution of sodium hydroxide and hydrogen gas. The reaction generates enough heat which ignites hydrogen, a combustible gas. Therefore sodium produces fire on reacting with water. The reaction is as follows: Sodium + Water -----> Sodium hydroxide + Hydrogen gas

2Na + H20 -------> 2NaOH + H2O

4. What is a displacement reaction? Explain with an example.

Ans: 4. A chemical reaction where one element displaces another because it is more reactive is called a displacement reaction. Displacement reactions take place when a metallic salt solution reacts with another metal. If the metal is more reactive, then it replaces the metal from its salt. An example is: copper sulphate reacting with iron to form iron sulphate and copper.

Iron + Copper sulphate ------→ Copper + Iron sulphate

5. Mention any two ways of preventing iron from rusting.

Ans: 5.Iron can be prevented from rusting by painting or by coating the object with other materials.

a) When surface of iron is coated with paint, it helps to keep air and water away from the surface. If paint peels off, the portion should be painted again.

b) When zinc, magnesium or aluminium are coated on iron, they react faster with oxygen as they are more reactive. The layer of oxide, such as zinc oxide, formed on the surface prevents the iron surface from rusting.

6. Write a short note on the metals in the human body.

Ans: 6. Certain metals are essential to living beings and are present in minute quantities in them. The human body requires the following metals.

• Sodium (Na) and potassium (K) help in transmitting electrical signals to and from the brain through nerves.

• Iron (Fe) is a component of haemoglobin in the red blood cells.

• Calcium (Ca) salts are needed in the formation of bones and teeth.

• Other metals such as magnesium (Mg), manganese (Mn), copper (Cu) and zinc (Zn) are needed in different life processes.

7. How do non-metals differ from metals in their physical properties?

Ans: 7. Non-metals can be solids, liquids or gases at room temperature while metals are mostly solids except mercury.

Elements which are non-metals are brittle, bad conductors of heat and electricity, have low density and low melting and boiling points; while metals are malleable and ductile, are good conductors of heat and electricity, have high melting and boiling points and high densities.

8. List the uses of silicon and phosphorus.

Ans: 8. Silicon Is mod for milking electronic component such an transistors, integrated circuit microphone and chip used in computors.

Silicon carbide formed by combining silicon with carbon is used to make cutting and grinding tools. Silicon dioxide (quartz crystals) are used to make watches.

Phosphorus is used in the making of fertilizes. Red phosphorus is used In matchsticks and fireworks. Phosphorus Is also used in manufacturing chemicals that kill rats and other pests.

9. What is an alloy? Explain with an example.

Ans: 9. Alloys are materials obtained by mixing two or more metals or a metal and a non-metal, By doing so, the physical properties of the material can be Improved. For Example, stainless steel is produced by mixing certain amount of nickel (NI) metal, chromium (Cr) metal and carbon (C) with Iron (Fe). It Is highly malleable, strong and rust proof.

VII. Hots

1.Think and answer.

1. Why is it not advisable to store sour things in aluminium jars?

Ans: Aluminium reacts with acids to form a salt, which is not good for health. As sour things are acidic, it is not advisable to store them in aluminium jars.

2. Why is lead not used to make electrical wires?

Ans: Lead (Pb) is a poor conductor of electricity and so it cannot be used to make electrical wires.

3. List the metals that are used in our day-to-day life. Explain the properties of any one metal with relation to its use.

Ans: Some of the metals that are used in day-to-day life are: Aluminium, Iron, Lead, Copper, Zinc, Chromium and many others. Aluminium is used in ship-building, aeroplanes, automobiles and utensils due to its high tensile strength.

4. Why is bronze preferred in the making of statues?

Ans: Bronze is corrosion resistant. It also has the property of expanding slightly just before it sets; this helps in filling in the finest details of a mould.

II. Complete the chemical equations.

1. Iron + Moisture + Oxygen —> ……

2. Copper + …….. ----------> Copper oxide

3. Sodium + Oxygen —> ----------

4. Metal + Dilute acid —> …… + Hydrogen

5. Non-metal + Oxygen —> ……..

6. Metal + …….. —> Metal oxide

II. 1. Iron oxide (Rust) 2. Oxygen 3. Sodium oxide 4. Metal salt 5. Non-metallic oxide 6. Oxygen

III. Which property or properties of the metal decides its use in the Mowing:

1. Temple bells 2. Electric wires 3. Axes and saws

4. Ornaments 5. heating element in electric bulbs 6. Aeroplanes

7. Electrodes 8. Thermometer 9. Mirror

10. Cooking utensils

Ans: III. 1. Sonority 2. Ductility and good conductor of electricity

3. Hardness and malleability

4. Lustre and ductility

5. High melting point

6. High tensile strength

7. Good conductor of electricity