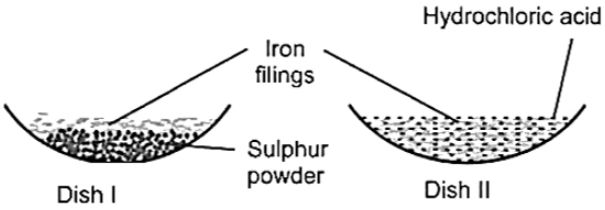
CBSE

IS MATTER AROUND US PURE WS 4

Class 09 - Science

Section A

1. Neha took two China dishes and marked them as I and II. **[1]**



In China dish I, she mixed iron filings and sulphur powder. In China dish II, she mixed iron filings and dilute hydrochloric acid. Which of the following statements is correct regarding this activity?

a) In China dish II, a new compound is formed, which is different from iron filings and dilute hydrochloric acid.

b) In China dish I, a mixture is formed, where iron filings and sulphur powder can be seen separately.

c) A colourless and odourless gas comes out from China dish II.

d) All of these

2. The components of the compound can be separated by using: **[1]**

a) chemical method

b) physical method

c) can be separated by using any method.

d) cannot be separated by using any method.

3. To prepare iron sulphide, by heating a mixture of iron filings and sulphur powder, we should use a: **[1]**

a) copper dish

b) china dish

c) watch glass

d) petri dish

4. **Assertion (A):** The gas obtained by Group I is hydrogen, It is not advised to do the combustion test for hydrogen. **[1]**

Reason (R): The material obtained by Group I is a mixture of the two substances. The substances given are the elements: iron and sulphur.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

5. Two substances, A and B were made to react to form a third substance, A_2B according to the following reaction **[1]**

$2A + B \rightarrow A_2B$. Which of the following statements concerning this reaction are incorrect?

i. The product A_2B shows the properties of substances A and B

ii. The product will always have a fixed composition

iii. The product so formed cannot be classified as a compound

iv. The product so formed is an element

a) (i), (ii) and (iii), b) (i), (iii) and (iv)

c) (iii) and (iv) d) (ii), (iii) and (iv)

6. An element **Y** is not lustrous, sonorous, or malleable. Identify **Y**. **[1]**

a) Gold b) Aluminum

c) Copper d) Bromine

7. An element **X** looks shiny but is brittle. It neither conducts electricity nor acts as an insulator, it is a semiconductor. Identify **X**. **[1]**

a) Non-metal b) Metal

c) Alloy d) Metalloid

8. Two chemical species X and Y combine together to form a product P which contains both X and $X + Y \rightarrow P$, X and Y cannot be broken down into simpler substances by simple chemical reactions. Which of the following concerning the species X, Y, and P are correct? **[1]**

i. P is a compound
ii. X and Y are compounds
iii. X and Y are elements
iv. P has a fixed composition

a) (i), (ii) and (iii) b) (ii), (iii) and (iv)

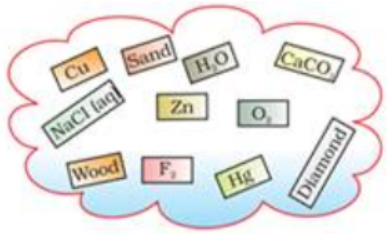
c) (i), (iii) and (iv) d) (i), (ii) and (iv)

9. Name two elements which exist in liquid state at room temperature. **[1]**

10. A hard substance when bent produces a tinkling sound. Predict its nature. **[1]**

11. A shining thick liquid is often used in glass thermometers. Name it. **[1]**

12. Classify the substances given in Fig. into elements and compounds: **[1]**



13. Name two metals which are both malleable and ductile. **[1]**

Section B

14. A diamond knife is quite often used for cutting glass. Why? **[2]**

15. Sodium chloride contains two elements, but it is still a pure substance. Give reason. **[2]**

16. How would you confirm that a colourless liquid given to you is pure water? **[2]**

17. An element is sonorous and highly ductile. Under which category would you classify this element? What other characteristics do you expect the element to possess? **[2]**

Section C

18. Give two points of differences between an element and a compound. **[3]**

19. Differentiate between metals and non-metals based upon the various properties that they show. **[3]**

20. Is water an element or a compound? Give reason in support of your statement. **[3]**

21. Differentiate between mixtures and compounds by giving appropriate examples. **[3]**

Section D

22. **State True or False:** **[4]**

(a) Helium, Neon, Argon, Krypton, Radon, and Xenon are called noble gases. **[1]**

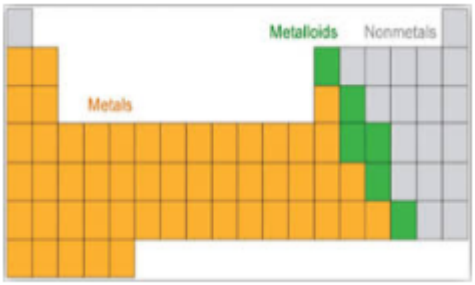
(b) An example of liquid metal and nonmetal is bromine and mercury. **[1]**

(c) The m.p. of bromine is -7^{o} and the b.p is 59^{o}. The state of bromine is gas. **[1]**

(d) The state in which 99% matter of the universe exists is solid. **[1]**

23. **Read the passage and answer any four questions:** **[4]**

An element as a basic form of matter that cannot be broken down into simpler substances by chemical reactions. Elements can be normally divided into metals, non-metals and metalloids. Examples of metals are gold, silver, copper etc. Examples of non-metals are hydrogen, oxygen, iodine etc. Some elements have intermediate properties between those of metals and non-metals, they are called metalloids. A compound is a substance composed of two or more elements, chemically combined with one another in a fixed proportion. The material obtained by the group I is a mixture of the two substances. The properties of the mixture are the same as that of its constituents.



i. Who was the first scientist to use the term elements?

a. Antoine Laurent

b. Robert Boyle

c. Robert Brown

d. none of these

ii. Which of the following property is not shown by metals

a. malleability

b. ductility

c. poor conductor

d. lustre

iii. _____ is the only metal that is liquid at room temperature.

a. mercury

b. silver

c. copper

d. gold

iv. The colourless gas with the smell of rotten egg is found in

a. group I

b. group II

c. group III

d. group IV

v. The constituent of compounds are separated by

a. chemical reaction

b. electrochemical reaction

c. both (a) and (b)

d. none of these

Section E

24. Iron filings and sulphur were mixed together and divided into two parts, A and B. Part A was heated strongly while part B was not heated. Dilute hydrochloric acid was added to both the parts and evolution of gas was seen in both the cases. How will you identify the gases evolved? **[5]**

25. i. What factors affect the solubility of solvent and solute? **[5]**

ii. State the differences between compounds and mixtures

Section F

26. **Fill in the blanks:** **[7]**

(a) _____ and _____ are examples of metalloids. **[1]**

(b) _____ is an allotropic form of a nonmetal is a good conductor of electricity. **[1]**

(c) The atomicity of sulphur is _____. **[1]**

(d) _____ is a non-metal other than carbon which shows allotropy. **[1]**

(e) _____ non-metal which is required for combustion. **[1]**

(f) Ice, water, and water vapour look different and display different _____ properties but they are _____ the same. **[1]**

(g) _____ non metal forms the largest number of compounds. **[1]**