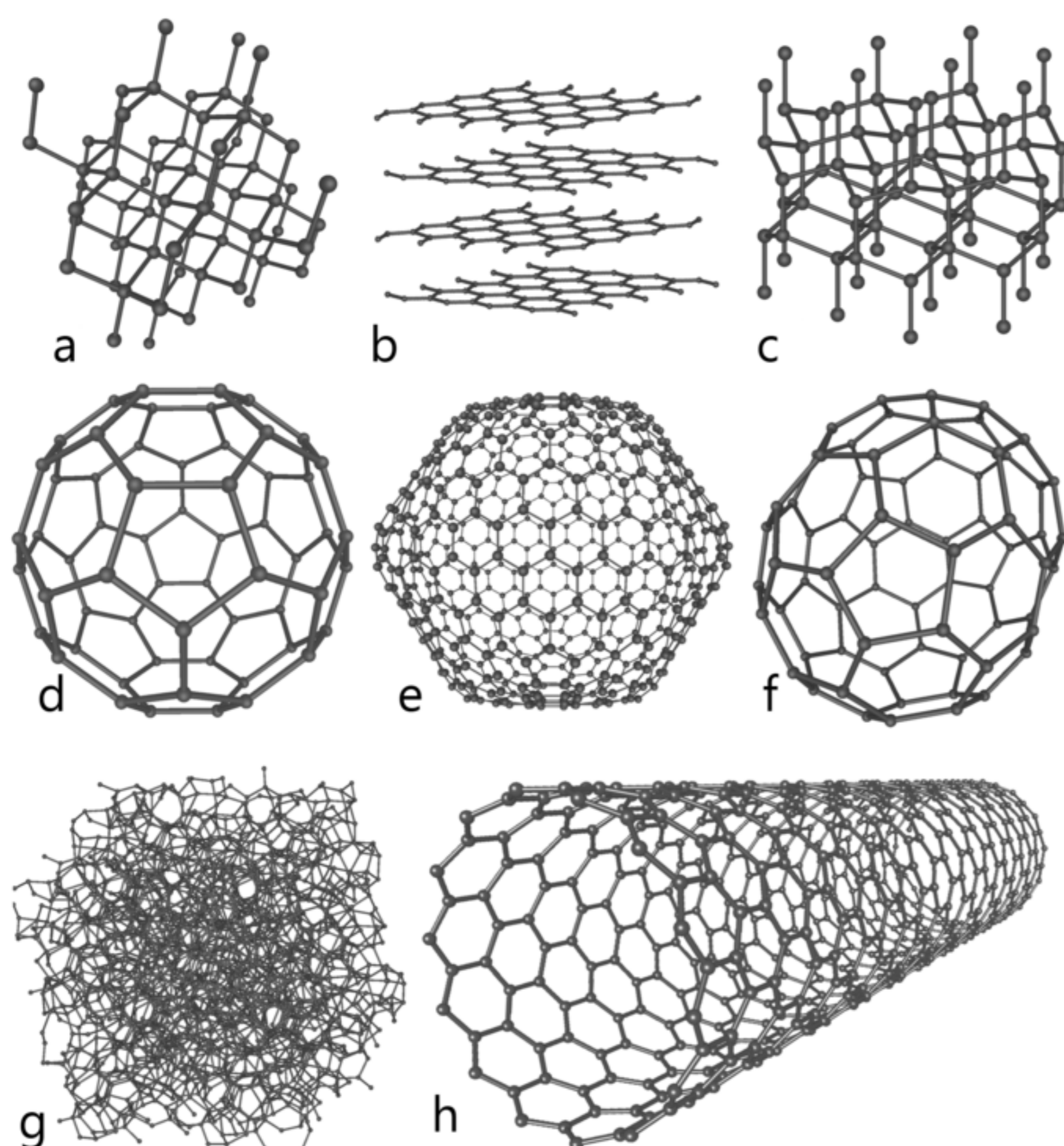


Case study based questions
10th Science**Metals and Non- Metals**

Passage - 1

5 Marks



Carbon is a non-metal that can exist in different forms. Each form is called an allotrope. Diamond, an allotrope of carbon, is the hardest natural substance known and has a very high melting and boiling point. Graphite, another allotrope of carbon, is a conductor of electricity. Alkali metals (lithium, sodium, potassium) are so soft that they can be cut with a knife. They have low densities and low melting points.

Q 1. State true or false: Carbon is a metalloid.

- (1) TRUE
- (2) FALSE

Q 2. Which of the following metals can be cut with kinife ?

- (1) Sodium
- (2) Potassium
- (3) Lithium
- (4) All of the above

Q 3. An allotrope of carbon is called as _____.

- (1) Pearl
- (2) Diamond

Q 4. Alkali metals have

- (1) Low density
- (2) Low melting point
- (3) All of the above

Q 5. Graphite is a metalloid.

- (1) YES
- (2) NO

Passage - 2

5 Marks



The ability of metals to be drawn into thin wires is called ductility. Gold is the most ductile metal. You will be surprised to know that a wire of about 2 km length can be drawn from one gram of gold. It is because of their malleability and ductility that metals can be given different shapes according to our needs.

Q 1. What is ductility used for_____.

- (1) To make metal into thin sheets
- (2) To make metal into thin wires

Q 2. Can One gram gold can be made to thin wire of 2km?

- (1) YES
- (2) NO

Q 3. Gold has property of _____.

- (1) Ductility
- (2) Malleability

- (3) Both A and B
- (4) None of the above

Q 4. Due to properties of gold we can _____.

- (1) Shape them according to us
- (2) Cannot be made in to any shape

Q 5. State true or false: Gold is the only metal which is not a ductile metal.

- (1) TRUE
- (2) FALSE

Passage - 3

5 Marks

Calcium starts floating because the bubbles of hydrogen gas formed stick to the surface of the metal. Magnesium does not react with cold water. It reacts with hot water to form magnesium hydroxide and hydrogen. It also starts floating due to the bubbles of hydrogen gas sticking to its surface. Metals like aluminium, iron and zinc do not react either with cold or hot water. But they react with steam to form the metal oxide and hydrogen.

Q 1. Why does calcium floats?

- (1) Due to hydrogen gas
- (2) Due to magnesium

Q 2. Do Magnesium reacts with cold water?

- (1) YES
 - (2) NO
-

Q 3. Metals which do not react in cold water react with ?

- (1) Steam
- (2) Hot water

Q 4. State true or false: Hydrogen gas Bubbles sticks to the surface of metals

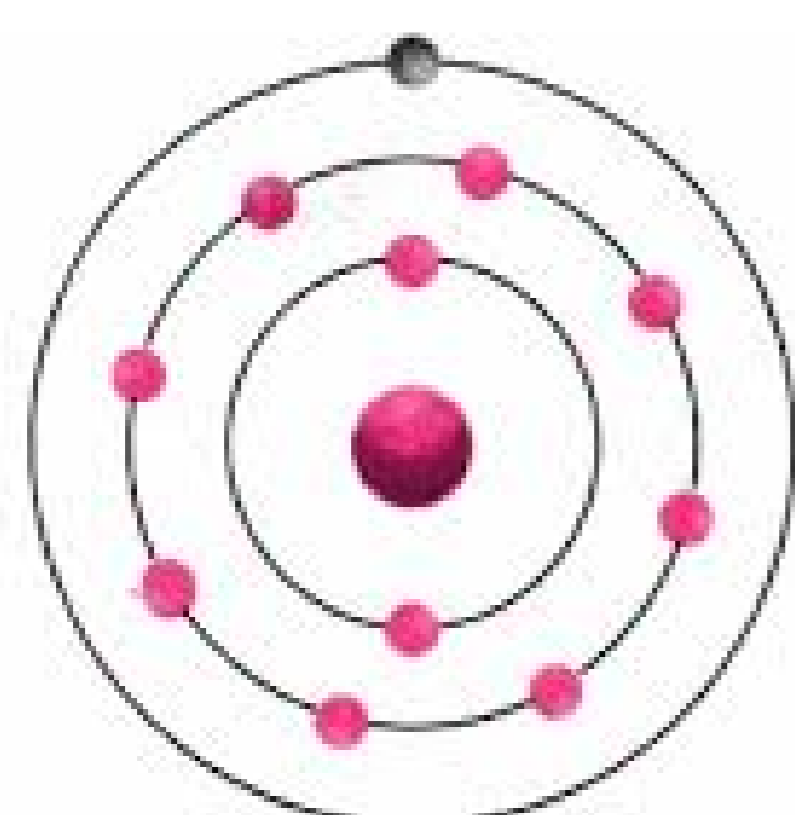
- (1) TRUE
- (2) FALSE

Q 5. Iron reacts with cold water.

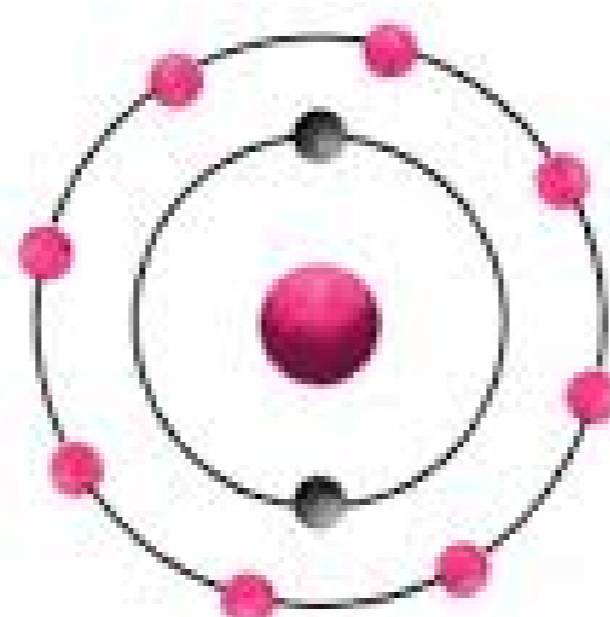
- (1) YES
- (2) NO

Passage - 4

5 Marks



Sodium atom



Sodium ion

A sodium atom has one electron in its outermost shell. If it loses the electron from its M shell then its L shell now becomes the outermost shell and that has a stable octet. The nucleus of this atom still has 11 protons but the number of electrons has become 10, so there is a net positive charge giving us a sodium cation

Na^+ . On the other hand chlorine has seven electrons in its outermost shell.

Q 1. How much electrons do sodium have in its outermost shell ?

- (1) 3
- (2) 2
- (3) 1
- (4) 4

Q 2. How much electrons do chlorine have in its outermost shell?

- (1) 9
- (2) 7

Q 3. When sodium losses electron from M shell , which shell it goes next?

- (1) L
- (2) P

Q 4. Chlorine has _____ electrons in its outermost shell.

- (1) 5
- (2) 7

Q 5. Which type of bond is formed between Chlorine and Sodium?

- (1) Ionic
 - (2) Covalent
 - (3) None of These
-