Answer Key 3.6

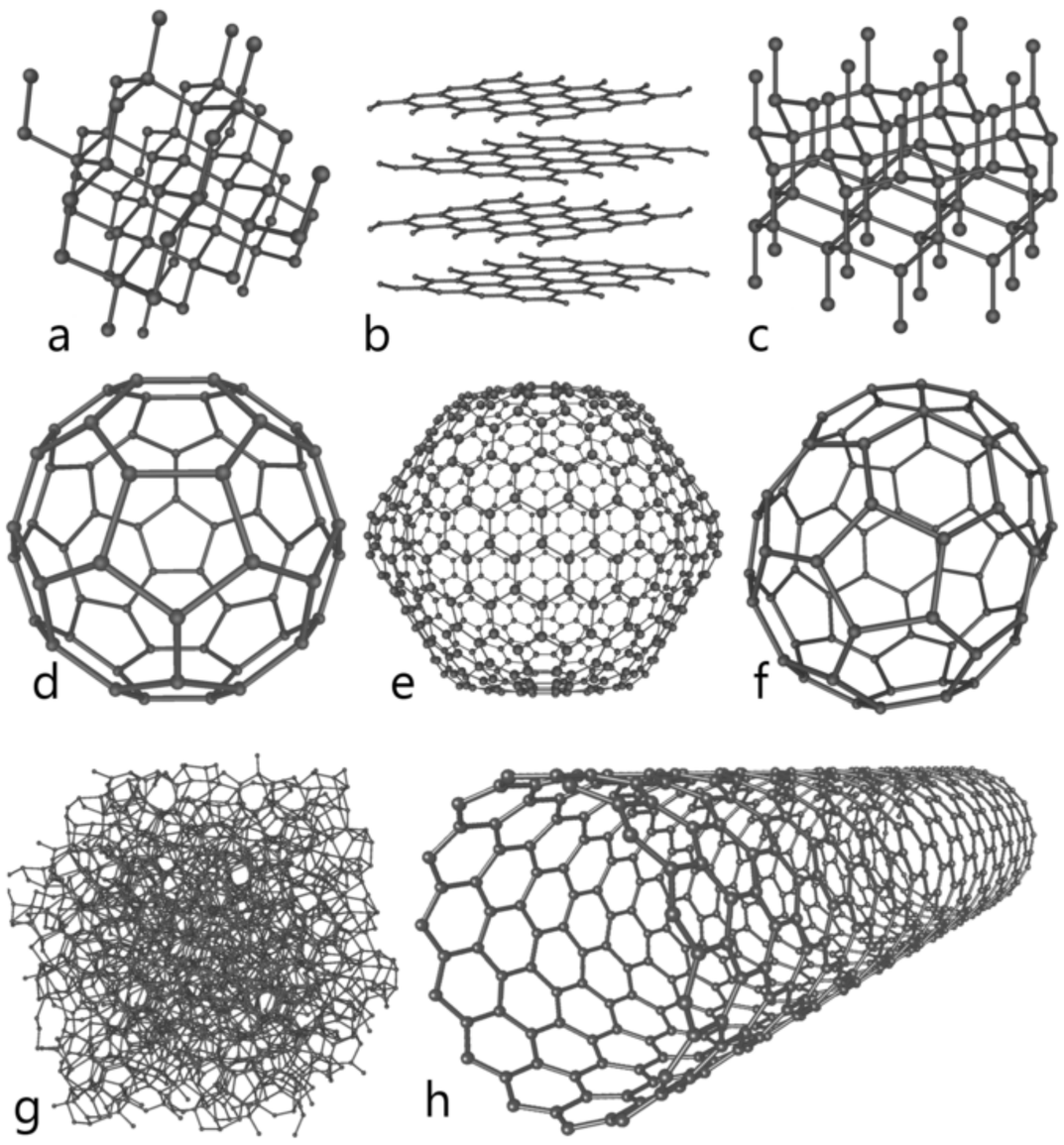
Marks - 20

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.

Q1. (2) FALSE

Q2. (4) All of the above

Q3. (2) Diamond

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Q4. (3) All of the above

Q5. (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.

Q1. (2) To make metal into thin wires

Q2. (1) YES

Q3. (3) Both A and B

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Q4. (1) Shape them according to us

Q5. (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.

Q1. (1) Due to hydrogen gas

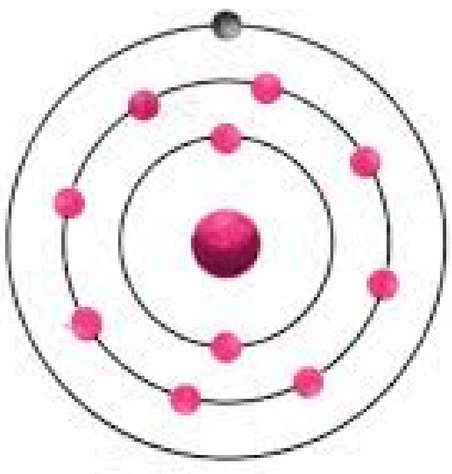
Q2. (2) NO

Q3. (1) Steam

Q4. (2) FALSE

Q5. (2) NO

Passage - 4 **5 Marks**



Sodium atom

Sodium ion

Answer Key 3.6

Marks - 20

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.

Q1. (3) 1

Q2. (2) 7

Q3. (1) L

Q4. (2) 7

Q5. (1) Ionic
