Chemistry Study Materials for Class 10

(MCQ based on: Carbon and its compounds)

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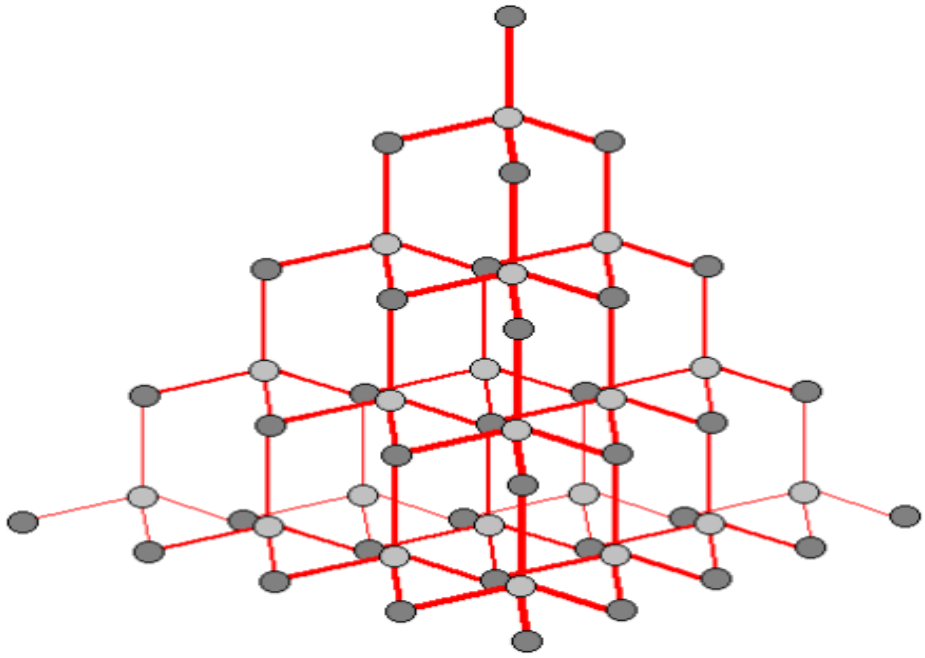
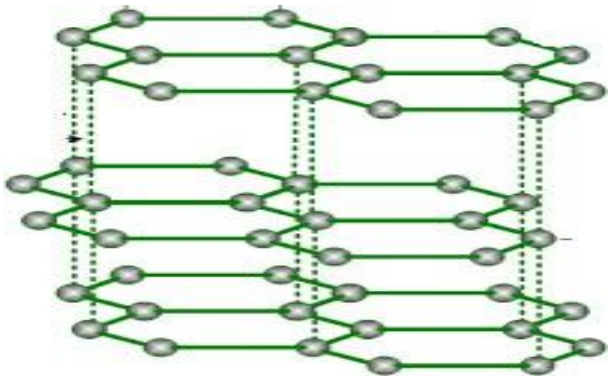
Diamond

- In diamond, each carbon atom is bonded to four other carbon atoms, forming a three dimensional structure.
- The rigid structure of diamond makes it a very hard substance.
- It is a non-conductor of electricity since there are no free electrons in a diamond crystal.
- It can be synthesized by subjecting pure carbon to a very high pressure and temperature.



Graphite

- In graphite, each carbon atom is bonded to three other carbon atoms in the same plane, giving a hexagonal array.
- One of the bonds is a double bond and thus the valency of carbon is satisfied.
- Graphite structure is formed by the hexagonal arrays being placed in layers, one above another.
- Graphite is smooth and slippery.
- It is a very good conductor of electricity due to the presence of free electrons.



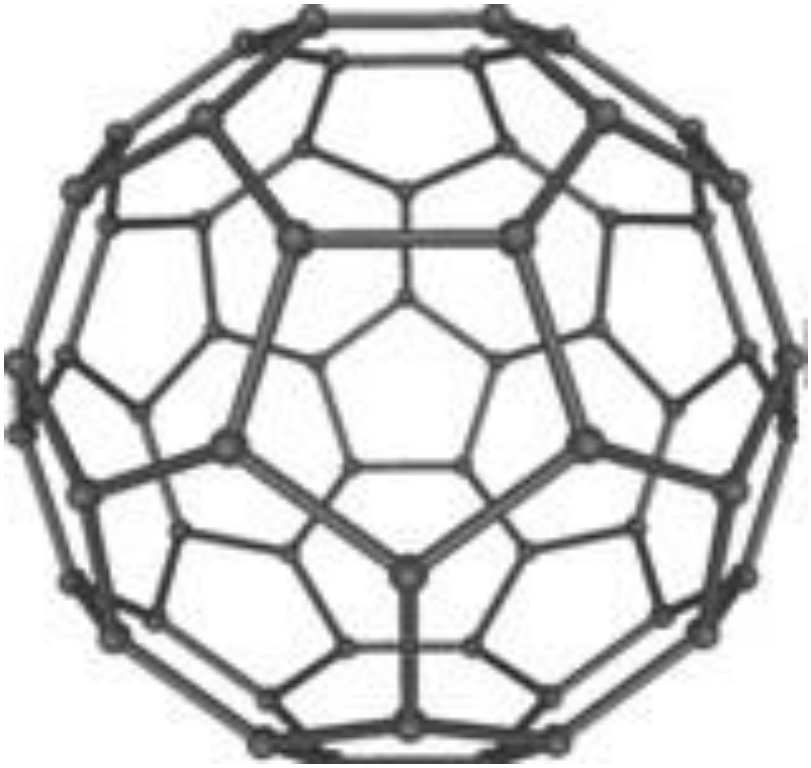
Graphite:

- Has a density of 2.25 g/cc.
- Has a soft and slippery feel.
- Is a good conductor of electricity.

Fullerene

- It is an allotrope of carbon containing clusters of 60 carbon atoms joined together to form spherical molecules.
- There are 60 carbon atoms in a molecule of buckminsterfullerene, so its formula is C_{60}.

- The allotrope was named buckminsterfullerene after the American architect Buckminster Fuller.
- It is the most common naturally occurring fullerene and can be found in small quantities in soot.
- It consists of 60 carbon atoms arranged in 12 pentagons and 20 hexagons, like in a soccer ball.



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