Name two giant covalent structures formed from carbon atoms

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Graphite

Diamond

Describe the structure of graphite

Describe the structure and properties relating to graphite

- Each carbon atom bonded to 3 other carbon atoms.
- Layers of hexagonal rings of carbon atoms.
- Weak intermolecular forces between layers.
- One delocalised electron per carbon atom.

Describe and explain the properties of graphite

Describe and explain the properties of graphite

- Soft/slippery because there are only weak intermolecular forces between layers which allow the layers to slide over one another.
- Electrical conductor because there is one delocalised electron per carbon atom. The delocalised electrons are mobile charges.

Describe the structure of diamond

Describe the structure of diamond

All carbon atom are covalently bonded to four other carbon atoms.

No delocalised electrons.

Describe the properties of diamond

Describe the properties of diamond

- Very hard due to strong covalent bonding.
- Very high melting point due to covalent bonds.
- Doesn’t conduct electricity as there are no charged particles.

What are the uses of graphite? Why?

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- Electrodes because graphite conducts electricity and has a high melting point.
- Lubricant because it's slippery (the layers can slide over each other).

Why is diamond used in cutting tools?

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It’s very hard