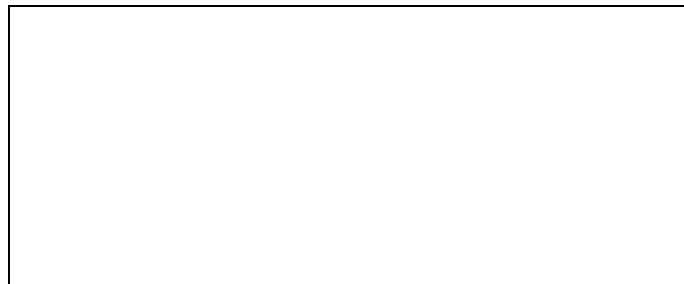


## Questions on Structure and Bonding 2

- 1 Draw a diagram showing the structure of a metal such as sodium. [2]



- 2 Explain why fullerene, C<sub>60</sub>, has a lower melting point than diamond and graphite. [3]

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- 3 Re-write the following sentences so that they are correct:

(a) *When a metal melts the electrostatic forces between oppositely-charged ions are broken.* [2]

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(b) *Sodium chloride conducts electricity when it is molten because the delocalized electrons are free to move.* [2]

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- 4 Explain why graphite conducts electricity but diamond does not. [3]

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- 5 Explain why metals are malleable. [2]

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- 6 Explain why alloys are generally harder than the pure metal. [3]

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## Questions on Structure and Bonding 2

7 In each case state properties of the metal which make it suitable for the particular use: [7]

<i><b>Metal</b></i>	<i><b>Use</b></i>	<i><b>Properties</b></i>
Aluminium	Overhead power cables	
Mild steel	Car bodies	
Stainless steel	cutlery	
High-carbon steel	swords	
Copper	Hot water pipes	
Aluminium	Airplanes	
Copper	Saucepans	

8 Some cars have mild steel bodies and others have aluminium bodies. Suggest advantages and disadvantages of each. [4]

Mild steel bodies:

Advantages: .....

.....

Disadvantages: .....

.....

Aluminium bodies:

Advantages: .....

.....

Disadvantages: .....

.....

9 Explain why the following statements are **false**  
*Sodium has a higher melting point (98 °C) than chlorine (-101.5 °C) because metallic bonding is stronger than covalent bonding.* [3]

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*C<sub>60</sub> fullerene conducts electricity because delocalized electrons are free to move.* [2]

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