Atoms

Question Paper

Level	Pre U
Subject	Chemistry
Exam Board	Cambridge International Examinations
Topic	Atoms-Physical Chemistry
Booklet	Question Paper

Time Allowed: 16 minutes

Score: /13

Percentage: /100

Grade Boundaries:

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1 Fig. 1.1 shows the structures of two allotropes of carbon.

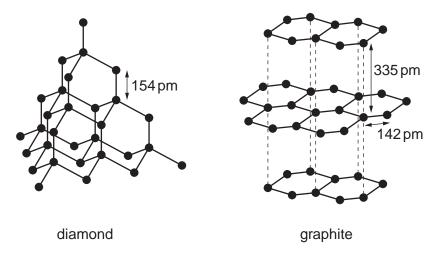


Fig. 1.1

(a)	With	n reference to Fig. 1.1
	(i)	explain the meaning of the term allotropes.
		[1]
	(ii)	describe the bonding in graphite and explain the difference between the two bond lengths shown in its structure.
		[3]
	(iii)	State how and explain why the hardness and electrical conductivity of each allotrope differ.

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(b) Group 14 is considered to represent a spectrum of behaviour ranging from non-metal at the top of the Group, through metalloid, to true metal at the bottom.
With reference to

	• (electrical conductivity of the element
	• ;	structure and bonding in the oxides
	justify	y this statement.
		[3]
(c)		V) oxide, SnO_2 , is easily prepared by oxidation of tin but lead(IV) oxide, PbO_2 , can be prepared by the action of very powerful oxidising agents on lead(II) compounds.
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[Total: 13]