14.1 More Structures & Shapes

Question Paper

Course	DP IB Chemistry
Section	14. Chemical Bonding & Structure (HL only)
Topic	14.1 More Structures & Shapes
Difficulty	Easy

Time allowed: 10

Score: /5

Percentage: /100

Question 1

Which of the following can form a sigma (σ) bond?

I. Overlap between an s-orbital and a p-orbital

II. Overlap between two s-orbitals

III. Overlap between two p-orbitals

A. I only

B. I and II only

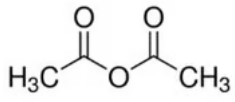
C. II and III only

D. I, II and III

[1 mark]

Question 2

What is the correct number of sigma (σ) and pi (π) bonds in ethanoic anhydride, $CH_3COOCOCH_3$?



	Number of sigma (σ) bonds	Number of pi (π) bonds
A.	10	4
B.	10	2
C.	12	2
D.	12	4

[1 mark]

Question 3

Which element does **not** form stable compounds that break the octet rule?

A. Sulfur

B. Oxygen

C. Boron

D. Chlorine

[1 mark]

Question 4

What are the bond angles in a molecule with five electron domains, XY_5?

	Axial bond angles / °	Equatorial bond angles / °
A.	90	90
B.	120	90
C.	90	120
D.	120	120

[1 mark]

Question 5

What is the correct formula to work out the formal charge on an atom?

A. FC = (Number of valence electrons) - $\frac{1}{2}$ (Number of bonding electrons) - (Number of non-bonding electrons)

B. FC = (Number of valence electrons) - (Number of bonding electrons) - (Number of non-bonding electrons)

C. FC = (Number of valence electrons) - (Number of non-bonding electrons) - (Number of bonding electrons)

D. FC = (Number of valence electrons) - $\frac{1}{2}$ (Number of non-bonding electrons) - (Number of bonding electrons)

[1 mark]