

14.2 Further Aspects of Bonding

Question Paper

Course	DIPB Chemistry
Section	14. Chemical Bonding & Structure (HL only)
Topic	14.2 Further Aspects of Bonding
Difficulty	Hard

Time allowed: 10
Score: /5
Percentage: /100

Question 1

Which species can be represented with only one Lewis structure?

- A. H_2PO_4^-
- B. O_3
- C. CH_3COCH_3
- D. 1,3 cyclohexadiene

[1 mark]

Question 2

In which group do both compounds contain delocalised electrons?

- A. K_2CO_3 and cyclohexene, C_6H_{10}
- B. KOH and methybenzene, C_7H_8
- C. KHCO_3 and buta-1,3-diene, C_4H_6
- D. Methanol and sodium methanoate, HCOONa

[1 mark]

Question 3

Which of the following are intermediate species in the catalytic depletion of ozone?

- I. ClO^\bullet
 - II. NO^\bullet
 - III. NO_2^\bullet
- A. I and II only
 - B. I and III only
 - C. II only
 - D. I, II and III

[1 mark]

Question 4

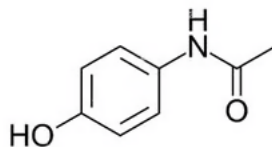
Which is **not** a correct statement about sp^3 hybridised carbons?

- A. They can form sigma or pi bonds
- B. They have the electron arrangement $1s^2 2s^1 2p^3$
- C. They have four bonding orbitals of equal energy
- D. The bonding orbitals have $1/4$ s character and $3/4$ p character

[1 mark]

Question 5

The structure of the painkiller paracetamol, often known as acetaminophen, is shown below:



Which of the following is not present in the structure?

- A. 5 lone pairs
- B. 7 atoms with bond angles of 120° around them
- C. 8 atoms with sp^2 hybrid orbitals
- D. 16 sigma (σ) bonds

[1 mark]