



**CHEMISTRY ONLINE**  
— **TUITION** —

Phone: +442081445350

[www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)

Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)

# CHEMISTRY

**MULTIPLE CHOICE - 3**

**CHEMICAL BONDING**

ChemistryOnlineTuition Ltd reserves the right to take legal action against any individual/ company/organization involved in copyright abuse.

## Chemical Bonding - 3

1. Predict the most likely bond angle at each nitrogen atom in diamine,  $\text{HN-NH}$ .

- (A)  $107^\circ$  (B)  $118^\circ$  (C)  $120^\circ$  (D)  $180^\circ$

2. Graphite can be used as a lubricant; diamond cannot. This is because graphite has

- (A) delocalized electrons.  
 (B) a hexagonal arrangement of atoms in the layers.  
 (C) covalent bonds between atoms in the layers.  
 (D) van der Waals' forces between the layers of atoms.

3. In which one of the following does ionic bonding occur between the named atoms?

- (A) aluminium and chlorine in the tetrachloroaluminate ion  
 (B) boron and fluorine in boron trifluoride  
 (C) hydrogen and chlorine in hydrogen chloride  
 (D) hydrogen and sodium in sodium hydride

4. The  $\text{C}_2\text{H}_2$  molecule is linear.

What can be deduced from this about the numbers of  $\sigma$  and  $\pi$  bonds present in the molecule?

	$\sigma$	$\pi$
A	2	2
B	2	3
C	3	1
D	3	2

5. The atoms X and Y have the electronic configurations shown below.

$X: 1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2$ ;  $Y: 1s^2 2s^2 2p^4$

Which one of the following compounds are they likely to form?

- (A) XY (B)  $\text{XY}_2$  (C)  $\text{X}_2\text{Y}$  (D)  $\text{XY}_4$

6. Which one of the following is a linear molecule?

- (A)  $\text{H}_2\text{O}$  (B) HCN (C)  $\text{SO}_2$  (D)  $\text{C}_2\text{H}_4$

7. Which molecule is planar?



8. Which of the following statements describes a phenomenon which can be explained by intermolecular hydrogen-bonding.

(A) The boiling points of the alkanes increase with increasing relative molecular mass.

(B)  $\text{CH}_3\text{OCH}_3$  ( $M_r=46$ ) has a higher boiling point than  $\text{CH}_3\text{CH}_2\text{CH}_3$  ( $M_r=44$ ).

(C) Hydrogen chloride forms an acidic solution when dissolved in water.

(D) Ice has a lower density than water at  $0^\circ\text{C}$ .

9. The gecko, a small lizard, can climb up a smooth glass window. The gecko has millions of microscopic hairs on its toes and each hair has thousands of pads at its tip. The result is that the molecules in the pads are extremely close to the glass surface on which the gecko is climbing. What is the attraction between the gecko's toe pads and the glass surface?

(A) co-ordinate bonds

(C) ionic bonds

(B) covalent bonds

(D) van der Waal's forces

10. Solid carbon dioxide,  $\text{CO}_2(\text{s})$  (dry ice), is used as refrigerating agent because it readily changes directly from the solid into the vapour state at a low temperature.

(A) covalent bonding

(B) hydrogen bonding

(C) ionic bonding

(D) van der Waals' forces

CHEMISTRY ONLINE  
— TUITION —

I am Sorry !!!!!



**DR. ASHAR RANA**  
M.B.B.S / MS. CHEMISTRY



- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
- Tutoring students in UK and worldwide since 2008
- CIE & EDEXCEL Examiner since 2015
- Chemistry, Physics, Math's and Biology Tutor

---

## CONTACT INFORMATION FOR CHEMISTRY ONLINE TUITION

- UK Contact: 02081445350
  - International Phone/WhatsApp: 00442081445350
  - Website: [www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)
  - Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)
- Address: 210-Old Brompton Road, London SW5 OBS, UK