

Chemistry
Standard level
Paper 1A

Practice paper

Topic: Models to Materials (SL)

1. Which set of axes is used for the Van Arkel-Ketelaar bonding triangle?
 - A. Atomic radius vs Electronegativity
 - B. Average electronegativity vs Electronegativity difference
 - C. Ionic radius vs Lattice Enthalpy
 - D. Bond length vs Bond enthalpy

2. Which substance would be located near the 'Metallic' corner of the Van Arkel-Ketelaar triangle?
 - A. NaCl
 - B. F₂
 - C. Cs
 - D. SiO₂

3. Which functional group is present in CH₃CH₂COOH?
 - A. Hydroxyl
 - B. Carbonyl
 - C. Carboxyl
 - D. Ether

4. Which of the following is an addition polymer?
 - A. Nylon 6,6
 - B. Polyethene
 - C. Terylene
 - D. Protein

5. What is the monomer for PVC (Polyvinyl chloride)?
 - A. Ethene
 - B. Chloroethene
 - C. Tetrafluoroethene
 - D. Propene

6. Which statement explains why alloys are generally harder than pure metals?
 - A. The atoms are smaller in alloys
 - B. The presence of different sized atoms prevents layers from sliding
 - C. Alloys have fewer delocalized electrons
 - D. Alloys have ionic bonds

7. Which functional group identifies an alcohol?
 - A. -CHO
 - B. -OH

- C. -NH_2
- D. -COOC-

8. Which environmental issue is most associated with addition polymers?

- A. Acid rain
- B. Depletion of the ozone layer
- C. Low biodegradability and microplastic formation
- D. Eutrophication

9. Brass is an alloy consisting of which two metals?

- A. Iron and Carbon
- B. Copper and Zinc
- C. Copper and Tin
- D. Lead and Tin

10. Which polymer is often used as a non-stick coating for cookware?

- A. HDPE
- B. PVC
- C. PTFE (Teflon)
- D. Polystyrene

11. Which bond is likely to have the highest ionic character?

- A. C-H
- B. Na-F
- C. O-O
- D. Si-Cl

12. What happens to the double bond during the formation of an addition polymer?

- A. It remains in the polymer structure
- B. It becomes a triple bond
- C. It opens up to form single bonds between monomer units
- D. It evaporates

13. Which functional group is found in CH_3COCH_3 ?

- A. Ketone
- B. Aldehyde
- C. Alcohol
- D. Ester

14. Which material is categorized as a ceramic-like network in the bonding triangle?

- A. NaCl
- B. SiO₂
- C. Cu
- D. O₂

15. Plasticizers are added to PVC to:

- A. Increase its strength
- B. Make it more flexible
- C. Change its color
- D. Make it biodegradable