

Name _____ Date _____

End of Chapter 7 test

This test and its sample answers have been written by the authors. IB may award marks differently.

1 Predict the shape of ammonia (NH_3).

- A trigonal pyramidal
- B tetrahedral
- C trigonal planar
- D T-shaped

2 Draw *two* different Lewis structures for the molecule nitrogen(I) oxide, N_2O (nitrogen is the central atom).

3 Consider the molecule BF_3 . Draw a Lewis structure for this molecule.

4 The following substances all contain a nitrogen-to-nitrogen bond: N_2 , N_2H_2 , N_2H_4 . Which shows them in *increasing* order of nitrogen-to-nitrogen bond strength (weakest first)?

- A N_2H_2 , N_2 , N_2H_4
- B N_2 , N_2H_2 , N_2H_4
- C N_2H_4 , N_2H_2 , N_2
- D N_2H_2 , N_2H_4 , N_2

5 What is the principal bonding present between molecules of fluoromethane, CH_3F ?

- A London forces
- B permanent dipole–permanent dipole attraction
- C hydrogen bonds
- D covalent bonds

6 Which of the following molecules are polar?

- I SF_2
- II SF_4
- III SF_6

- A I and II
- B I and III
- C II and III
- D I, II and III

7 What is the OCO bond angle in HCO_3^- ?

- A 107°
- B 109.5°
- C 120°
- D 180°

8 The following reaction scheme shows the production of ethanal from ethene:



List these three molecules in order of increasing boiling point (lowest first) and explain why this is the correct order.

END OF TEST