

## DPP

DAILY PRACTICE PROBLEMS

Class : XI<sup>th</sup>  
Date :

Subject : CHEMISTRY  
DPP No. : 1

### Topic :- Chemical Bonding and Molecular Structure

- The true statements from the following are
  - PH<sub>5</sub> and BiCl<sub>5</sub> do not exist
  - $p\pi - d\pi$  bond is present in SO<sub>2</sub>
  - Electrons travel at the speed of light
  - SeF<sub>4</sub> and CH<sub>4</sub> have same shape
  - I<sub>3</sub><sup>+</sup> has bent geometry

a) 1,3                      b) 1,2,5                      c) 1,3,5                      d) 1,2,4
- 1,3-butadiene has:
 

a) 6σ and 2π-bonds      b) 2σ and 2π-bonds      c) 9σ and 2π-bonds      d) 6σ and 2π-bonds
- The bond between atoms of two elements of atomic number 37 and 53 is:
 

a) Covalent                      b) Ionic                      c) Coordinate                      d) Metallic
- In methane the bond angle is
 

a) 180°                      b) 90°                      c) 109°                      d) 120°
- One would expect the elemental form of Cs at room temperature to be:
 

a) A network solid      b) A metallic solid      c) Non-polar liquid      d) An ionic liquid
- Which of the following is false?
 

a) Glycerol has strong hydrogen bonding

b) Glycol is a poisonous alcohols

c) Waxes are esters of higher alcohols with higher acids

d) Alkyl halides have higher b.p. than corresponding alcohols
- Ionic radii are:
 

a)  $\propto \frac{1}{\text{effective nuclear charge}}$

b)  $\propto \frac{1}{(\text{effective nuclear charge})^2}$

c)  $\propto$  effective nuclear charge

d)  $\propto$  (effective nuclear charge)<sup>2</sup>
- Which of the following statements is incorrect?
 

a) He<sub>2</sub> does not exist because its bond order is zero

b) O<sub>2</sub>, O<sub>2</sub><sup>-</sup> and O<sub>2</sub><sup>+</sup> are all paramagnetic

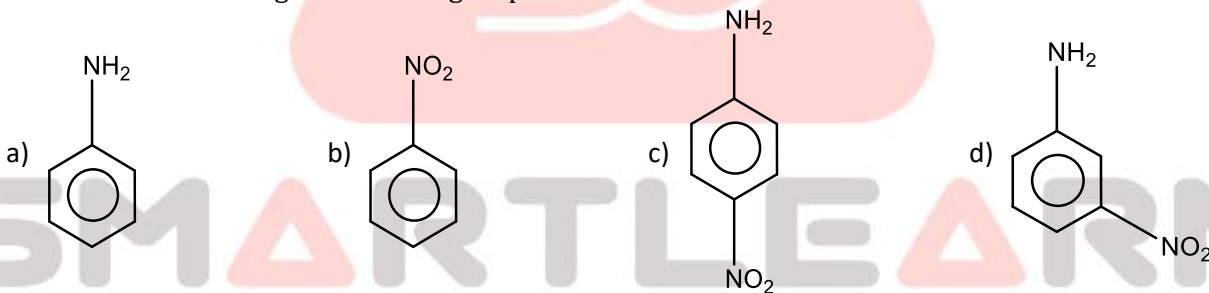
c) Any two atomic orbitals can combine to form two molecular orbitals

d)  $\pi(2p_x)$  and  $\pi(2p_y)$  are degenerate molecular orbitals
- Which of the following pairs will form the most stable ionic bond?
 

a) Na and Cl                      b) Mg and F                      c) Li and F                      d) Na and F

10. Among NaF, NaCl, NaBr and NaI, the NaF has highest melting point because:
- It has maximum ionic character
  - It has minimum ionic character
  - It has associated molecules
  - It has least molecular weight
11. The planar structure of  $\text{BF}_3$  can be explained by the fact that  $\text{BF}_3$  is
- $sp$  hybridized
  - $sp^2$  hybridised
  - $sp^3$  hybridised
  - $sp^3 d$  hybridized
12. The correct order of bond order value among the following is
- $\text{NO}^-$
  - $\text{NO}^+$
  - $\text{NO}$
  - $\text{NO}^{2+}$
  - $\text{NO}^{2-}$
- $(i) < (iv) < (iii) < (ii) < (v)$
  - $(iv) = (ii) < (i) < (v) < (iii)$
  - $(v) < (i) < (iv) = (iii) < (ii)$
  - $(ii) < (iii) < (iv) < (i) < (v)$
13. The bond between chlorine and bromine in  $\text{BrCl}_3$  is:
- Ionic
  - Non-polar
  - Polar with negative end on  $\text{Br}^-$
  - Polar with negative end on  $\text{Cl}^-$

14. Which of the following has regular tetrahedral shape?
- $[\text{Ni}(\text{CN})_4]^{2-}$
  - $\text{SF}_4$
  - $[\text{BF}_4]^-$
  - $\text{XeF}_4$
15. Which of the following will have large dipole moment?



16.  $\text{PCl}_5$  exists but  $\text{NCl}_5$  does not because:
- Nitrogen has no vacant  $2d$ -orbitals
  - $\text{NCl}_5$  is unstable
  - Nitrogen atom is much smaller than phosphorus
  - Nitrogen is highly inert
17. In which of the following pairs the two species are not isostructural?
- $\text{PCl}_4^+$  and  $\text{SiCl}_4$
  - $\text{PF}_5$  and  $\text{BrF}_5$
  - $\text{AlF}_6^{3-}$  and  $\text{SF}_6$
  - $\text{CO}_3^{2-}$  and  $\text{NO}_3^-$
18. The molecule having a pyramidal shape out of the following is
- $\text{CO}_2$
  - $\text{BF}_3$
  - $\text{SF}_4$
  - $\text{NH}_3$
19. If  $\text{Na}^+$  ion is larger than  $\text{Mg}^{2+}$  ion and  $\text{S}^{2-}$  is larger than  $\text{Cl}^-$  ion, which of the following will be stable soluble in water?
- Sodium chloride
  - Sodium sulphide
  - Magnesium chloride
  - Magnesium sulphide

20. An atom of an element  $A$  has three electrons in its outermost orbit and that of  $B$  has six electrons in its outermost orbit. The formula of the compound between these two will be
- a)  $A_3B_6$                       b)  $A_2B_3$                       c)  $A_3B_2$                       d)  $A_2B$



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