

TEST-B

SOLVED

Time: 1 hr.

Max. Marks: 30

SECTION-A

Tick the correct option:

1. The hydride with highest value of the bond angle is [1]
(i) Ammonia (ii) Water
(iii) Phosphine (iv) Hydrogen sulphide
2. Thermodynamically, the most stable form of sulphur is [1]
(i) Monoclinic sulphur (ii) Rhombic sulphur
(iii) Chair form of sulphur (iv) Sulphur vapour
3. Iodine dissolves in an aqueous solution of potassium iodide to form potassium triiodide. The shape of triatomic iodide ion, I_3^- is same as [1]
(i) XeF_2 (ii) ICl_2^+ (iii) N_3^- (iv) BrF_2^+

Assertion-Reason type Questions:

- (i) If assertion and reason both are correct and reason is the correct explanation of assertion.
 - (ii) If assertion and reason both are correct and reason is not the correct explanation of assertion.
 - (iii) If assertion is correct and reason is wrong.
 - (iv) If assertion is wrong and reason is correct.
4. Assertion: Cl_2 and ClO_2 both are used as a bleaching agent to disinfect sewage and drinking water. [1]
Reason: Cl_2 and ClO_2 both are powerful oxidising agents.
 5. Assertion: Red phosphorus is much less reactive and non-toxic than white phosphorus. [1]
Reason: Red phosphorus consists of discrete P_4 tetrahedral molecules.

One word /One Sentence type Questions.

6. N-N bond dissociation energy is less than that of P-P bond. Explain why? [1]
7. Which form of sulphur is attracted towards the magnetic poles? [1]

SECTION-B

8. Explain the following: [2]
(i) Phosphorus acid disproportionates on heating.
(ii) H_2SO_4 is a better dehydrating agent than HNO_3 .

9. Complete and balance the following equations: [2]
- (i) $P_4 + SOCl_2 \rightarrow$
- (ii) $Cl_2 + NaOH \rightarrow$
cold and dilute
10. Distinguish between white phosphorus and red phosphorous on the basis of their [2]
- (i) structure (ii) chemical reactivity
11. Draw the structure of the following molecules and predict whether the bond angle is more, less or equal to 90° . [3]
- (i) XeF_2 (ii) ClF_3 (iii) BF_3
12. Account for the following: [3]
- (i) The stability of -2 oxidation state decreases down the group 16.
- (ii) Greenish yellow colour of Cl_2 fades away when passed through water.
- (iii) SF_6 exist but SCl_6 does not.
13. Give reason [3]
- (i) PCl_5 in the solid state exist in the ionic form and conducts electricity in the molten state.
- (ii) Fluorine does not form more than one oxoacid.
- (iii) Cl^- ion is more stable than F^- .
14. Arrange the following in the order of property indicated for each set. [3]
- (i) $M - F$, $M - Cl$, $M - Br$, $M - I$: decreasing ionic character
- (ii) $HOCl$, $HOClO$, $HOClO_2$, $HOClO_3$: increasing acid strength
- (iii) H_2O , H_2S , H_2Se , H_2Te : increasing volatility
15. (a) How would you prepares: [3+2]
- (i) Cl_2 gas in the laboratory
- (ii) $XeOF_4$ from XeF_6
- (iii) PCl_5 from P_4
- (write only balanced chemical equation)
- (b) (i) Give the formula of the noble gas species that is isostructural with ICl_4^- .
- (ii) $Cl_2 + 2X^- \rightarrow 2Cl^- + X_2$
- What do 'X' stands for in this equation?

