

- Q.7** Which of the following pairs will form the most stable ionic bond ?
- (1) Na and Cl (2) Mg and F
 (3) Li and F (4) Na and F
- Q.8** The boiling point of ICl is nearly 40°C higher than that of Br₂ although the two substances have the same relative molecular mass. This is because:
- (1) ICl is ionic compound
 (2) I-Cl bond is stronger than Br-Br bond
 (3) ICl is polar covalent molecular while Br₂ is non polar
 (4) Ionization energy IP of Iodine is less than that of Br
- Q.9** The M.P. of SnCl₄ is less than of SnCl₂, the suitable reason for the observed fact is:
- (1) There is more charge on Sn⁺⁴
 (2) The size of Sn⁺⁴ is small
 (3) Ionic potential (ϕ) of Sn⁺⁴ is high
 (4) The shape of SnCl₄ is tetrahedral
- Q.10** The number of σ & π bond in the compound respectively are -
- $$\begin{array}{c}
 \text{NC} \quad \diagdown \\
 \quad \quad \quad \text{C} = \text{C} \quad \diagup \text{M}(\text{CO})_3 \\
 \text{NC} \quad \diagup \quad \quad \quad \diagdown \text{Et}
 \end{array}$$
- (1) 19, 11 (2) 19, 5
 (3) 13, 11 (4) 7, 3
- Q.11** The pair which have maximum value of μ , would be -
- (1) Cs₂O, NO₂ (2) CO₂, ZnO
 (3) BeO, Al₂O₃ (4) Cl₂O, NO₂
- Q.12** Ionic potential (ϕ) of electropositive element will be highest in which of the following compound -
- (1) CsCl (2) MgCl₂
 (3) AlF₃ (4) SF₆
- Q.13** In [Fe(CO)₅], hybridisation state and number of co-ordinate bonds are -
- (1) sp³d, 5 (2) dsp², 10
 (3) d²sp², 5 (4) dsp³, 10

Q.14 Which is not correct:

- (1) Bond angle H–S–H < H–OH
- (2) Bond angle F–O–F < Cl–O–Cl
- (3) Bond angle H–P–H < H–N–H
- (4) Bond angle Cl–Sn–Cl > Cl–Hg–Cl

Q.15 The AsF_5 molecule is trigonal bipyramidal. The hybrid orbitals used by the As atoms for bonding -

- (1) $d_{x^2-y^2}, d_{z^2}, s, p_x, p_y$
- (2) d_{xy}, s, p_x, p_y, p_z
- (3) $s, p_x, p_y, p_z, d_{z^2}$
- (4) $d_{x^2-y^2}, s, p_x, p_y$

Q.16 Incorrect code regarding shape is -

- (1) Linear : , $(\text{CN})_2$,
- (2) Pyramidal : , $\text{NH}_3, \text{XeO}_3$
- (3) Trigonal planar :
- (4) Tetrahedral : $\text{SiH}_4, \text{Ni}(\text{CO})_4, [\text{CuBr}_4]^{-2}$

Q.17 Which of the following set is not correct -

- (1) SO_3, O_3 , all have coordinate bonds
- (2) $\text{H}_2\text{O}, \text{NO}_2$, all are 'V' shape molecules
- (3) $\text{I}_3^-, \text{ICl}_2^-, \text{NO}_2^+$ all are linear molecules
- (4) $\text{SF}_4, \text{SiF}_4, \text{XeF}_4$ are tetrahedral in shape

Q.18 Linear structure is assumed by -

- (I) NCO^-
 - (II) CS_2
 - (III) NO_2^+
 - (IV) Solid BeH_2
- (1) all four
 - (2) (II), (III) and (IV)
 - (3) (I), (II) and (III)
 - (4) (II) and (III)

Q.19 The shapes of $\text{XeF}_4, \text{XeF}_5^-$ and SnCl_2 are -

- (1) octahedral, trigonal bipyramidal and bent
- (2) Sq. pyramidal, pentagonal planar and linear
- (3) Sq. Planar, pentagonal planar and angular
- (4) See-saw, T-shaped and linear

Q.20 Which of the following process are associated with change of hybridization of the underlined compound?

- (1) $\text{Al}(\text{OH})_3$ ppt. dissolved in NaOH
- (2) B_2H_6 is dissolved in THF
- (3) SiF_4 vapour is passed through liq. HF
- (4) Solidification PCl_5 vapour

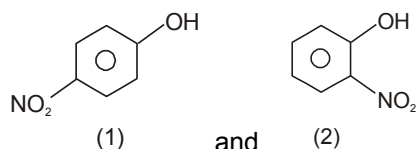
Correct answer is -

- (1) 1, 2, 4 (2) 1, 3, 4
(3) 2, 3, 4 (4) 1, 2, 3

Q.21 Species having zero dipole moment:

- (1) XeF₄ (2) SO₂
(3) SF₄ (4) CH₂Cl₂

Q.22 Out of the two compounds shown below, the vapour pressure of (2) at a particular temperature is expected to be:



- (1) Higher than that of (1)
(2) Lower than that of (1)
(3) Same as that of (1)
(4) Can be higher or lower depending upon the size of the vessel

Q.23 Which of the following molecules are expected to exhibit intermolecular H-bonding?

- (I) Acetic acid
(II) o-nitrophenol
(III) m-nitrophenol
(IV) o-boric acid

Select correct alternate :

- (1) I, II, III (2) I, II, IV
(3) I, III, IV (4) II, III, IV

Q.24 Which one is the most resonance stabilized amongst the following -

- (1) NO₃⁻ (2) NO₂⁻
(3) SO₂ (4) O₃

Q.25 In which of the following compounds resonance does not occurs -

- (a) H₂O (b) SiO₂
(c) SO₃ (d) CO₂

Correct answer is -

- (1) a and d (2) a and b
(3) c and d (4) b, c and d

Q.26 Resonance is not shown by -

- (1) C₆H₆ (2) CO₂ (3) CO₃²⁻ (4) SiO₂

- Q.27** In PO_4^{3-} , the formal charge on each oxygen atom and the P–O bond order respectively are -
 (1) – 0.75, 0.6 (2) – 0.75, 1.0
 (3) – 0.75, 1.25 (4) – 3, 1.25
- Q.28** Incorrect order of melting point and boiling point -
 (1) $\text{NaCl} < \text{MgCl}_2 < \text{AlCl}_3$
 (2) $\text{HF} > \text{HBr} > \text{HCl}$
 (3) $\text{H}_2\text{O} > \text{HF} > \text{NH}_3$
 (4) $\text{H}_2\text{O} > \text{C}_2\text{H}_5\text{OH} > \text{CH}_3 - \text{O} - \text{CH}_3$
- Q.29** Pick out the wrong statement -
 (1) LiF has less solubility in water than LiI (2) Lattice energy of MgO is greater than Na_2O
 (3) LiH is more stable than KH
 (4) KO_2 is diamagnetic and colourless
- Q.30** A metal M readily forms its sulphate MSO_4 , which is water soluble. It forms an insoluble hydroxide M(OH)_2 which is soluble in NaOH solution, then M is -
 (1) Mg (2) Ca (3) Be (4) Ba

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	4	3	4	1	4	2	2	3	3	1
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	4	4	4	4	3	3	4	3	3	2
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	3	1	2	4	3	1	4	3