

Date Planned : __ / __ / __	Daily Tutorial Sheet-1	Expected Duration : 30 Min
Actual Date of Attempt : __ / __ / __	Level-1	Exact Duration : _____

- Boron cannot form which one of the following anions ? ▶
 (A) BF_6^{3-} (B) BH_4^- (C) $\text{B}(\text{OH})_4^-$ (D) BO_2^-
- Carbon cannot be used in the reduction of Al_2O_3 because :
 (A) It is expensive
 (B) The enthalpy of formation of CO_2 is more than that of Al_2O_3
 (C) Pure carbon is not easily available
 (D) The enthalpy of formation of Al_2O_3 is too high
- Inorganic benzene is :
 (A) $\text{B}_3\text{H}_3\text{N}_3$ (B) BH_3NH_3 (C) $\text{B}_3\text{H}_6\text{N}_3$ (D) $\text{H}_3\text{B}_3\text{N}_6$
- Which is a correct statement about diborane structure ? ▶
 (A) All HBH bond angles are equal
 (B) All H–B bond lengths are equal
 (C) It has two three-centre-two electron bonds
 (D) All hydrogen and boron atoms are in one plane
- Which one of the following is the correct statement ? ▶
 (A) Boric acid is a protic acid
 (B) Beryllium exhibits coordination number of six
 (C) Chlorides of both beryllium and aluminium have bridged chloride structures in solid phase
 (D) $\text{B}_2\text{H}_6 \cdot 2\text{NH}_3$ is known as inorganic benzene
- Boron halides behave as Lewis acids because of their _____ nature.
 (A) proton donor (B) covalent
 (C) electron deficient (D) ionising
- An element X which occurs in the first short period has an outer electronic structure s^2p^1 . What is the formula and acid-base character of its oxides ? ▶
 (A) XO_3 , basic (B) X_2O_3 , basic (C) X_2O_3 , acidic (D) XO_2 , acidic
- The structure of diborane (B_2H_6) contains : ▶
 (A) Four $2c-2e^-$ bonds and four $3c-2e^-$ bonds
 (B) Two $2c-2e^-$ bonds and two $3c-2e^-$ bonds
 (C) Two $2c-2e^-$ bonds and four $3c-2e^-$ bonds
 (D) Four $2c-2e^-$ bonds and two $3c-2e^-$ bonds
- $\text{BCl}_3 + \text{H}_2\text{O} \longrightarrow \text{X}$, the products formed in the reaction are : ▶
 (A) $\text{B}_2\text{O}_3 + \text{HOCl}$ (B) $\text{H}_3\text{BO}_3 + \text{HCl}$ (C) $\text{B}_2\text{H}_6 + \text{HCl}$ (D) No reaction
- Aluminium chloride exists as dimer, Al_2Cl_6 in solid state as well as in solution of non-polar solvents such as benzene. When dissolved in water, it gives :
 (A) $\text{Al}^{3+} + 3\text{Cl}^-$ (B) $[\text{Al}(\text{H}_2\text{O})_6]^{3+} + 3\text{Cl}^-$
 (C) $[\text{Al}(\text{OH})_6]^{3-} + 3\text{HCl}$ (D) $\text{Al}_2\text{O}_3 + 6\text{HCl}$

11. Al_4C_3 is an ionic carbide, named as : ▶
(A) Acetylide **(B)** Methanide **(C)** Allylide **(D)** Alloy
12. Boric acid is used in carom boards for smooth gliding of pawns because :
(A) H_3BO_3 molecules are loosely chemically bonded and hence soft
(B) Its low density makes it fluffy
(C) It can be powdered to a very small grain size
(D) It is chemically inert with the plywood
13. Heating an aqueous solution of aluminium chloride to dryness will give :
(A) $\text{Al}(\text{OH})\text{Cl}_2$ **(B)** Al_2O_3 **(C)** Al_2Cl_6 **(D)** AlCl_3
14. The correct order of Lewis acidic strength of boron trihalides : ▶
(A) $\text{BF}_3 < \text{BCl}_3 < \text{BBr}_3 < \text{BI}_3$ **(B)** $\text{BI}_3 < \text{BBr}_3 < \text{BCl}_3 < \text{BF}_3$
(C) $\text{BBr}_3 < \text{BCl}_3 < \text{BF}_3 < \text{BI}_3$ **(D)** $\text{BF}_3 < \text{BBr}_3 < \text{BCl}_3 < \text{BI}_3$
15. In diborane the two $\text{H}-\text{B}-\text{H}$ angles are nearly : ▶
(A) $60^\circ, 120^\circ$ **(B)** $95^\circ, 120^\circ$ **(C)** $95^\circ, 150^\circ$ **(D)** $120^\circ, 180^\circ$