Date Planned : __ / __ / __	Daily Tutorial Sheet-1	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Main Archive	Exact Duration :_____

1. Alum helps in purifying water by : **(2002)**

(A) forming Si complex with clay particles

(B) sulphate part which combines with the dirt and removes it

(C) coagulating the mud particles

(D) making mud water soluble

2. Glass is a : **(2003)**

(A) micro-crystalline solid **(B)** super-cooled liquid

(C) gel **(D)** polymeric mixture

3. Graphite is a soft solid lubricant extremely difficult to melt. The reason for this anomalous behaviour is that graphite : **(2003)**

(A) is a non-crystalline substance

(B) is an allotropic form of diamond

(C) has molecules of variable molecular masses like polymers

(D) has carbon atoms arranged in large plates of rings of strongly bound carbon atoms with weak interplate bonds

4. The soldier of Napolean army while at Alps during freezing winter suffered a serious problem as regards to the tin buttons of their uniforms. White metallic tin buttons got converted to grey powder. This transformation is related to : **(2004)**

(A) an interaction with nitrogen of the air at very low temperatures

(B) a change in the crystalline structure of tin

(C) a change in the partial pressure of oxygen in the air

(D) an interaction with water vapour contained in the humid air

5. 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 : **(2004)**

(A) $Al^{3+} + 3Cl^-$ **(B)** $[Al(H_2O)_6]^{3+} + 3Cl^-$

(C) $[Al(OH)_6]^{3-} + 3HCl$ **(D)** $Al_2O_3 + 6HCl$

6. The states of hybridisation of boron and oxygen atoms in boric acid (H_3BO_3) are respectively : **(2004)**

(A) sp^2 and sp^2 **(B)** sp^2 and sp^3

(C) sp^3 and sp^2 **(D)** sp^3 and sp^3

7. Heating an aqueous solution of aluminium chloride to dryness will give : **(2005)**

(A) $AlCl_3$ **(B)** Al_2Cl_6

(C) Al_2O_3 **(D)** $Al(OH)Cl_2$

8. The number and type of bonds between two carbon atoms in calcium carbide are : **(2005)**

(A) one sigma, one pi **(B)** one sigma, two pi

(C) two sigma, one pi **(D)** two sigma, two pi

9. The structure of diborane (B_2H_6) contains : **(2005)**

(A) four 2c - 2e bond and two 3c - 2e bonds

(B) two 2c - 2e bond and four 3c - 2e bonds

(C) two 2c - 2e bond and two 3c - 2e bonds

(D) four 2c - 2e bond and four 3c - 2e bonds

10. In silicon dioxide : **(2005)**

(A) each silicon atom is surrounded by four oxygen atoms and each oxygen atom is bounded to two silicon atoms

(B) each silicon atom is surrounded by two oxygen atoms and each oxygen atom is bounded to two silicon atoms

(C) silicon atom is bonded to two oxygen atoms

(D) there are double bonds between silicon and oxygen atoms

11. Which of the following oxides is amphoteric in character ? **(2005)**

(A) CaO **(B)** CO_2 **(C)** SiO_2 **(D)** SnO_2

12. The stability of dihalides of Si, Ge Sn and Pb increases steadily in sequence : **(2007)**

(A) $PbX_2 << SnX_2 << GeX_2 << SiX_2$ **(B)** $GeX_2 << SiX_2 << SnX_2 << PbX_2$

(C) $SiX_2 << GeX_2 << PbX_2 << SnX_2$ **(D)** $SiX_2 << GeX_2 << SnX_2 << PbX_2$

13. Among the following substituted silanes the one which will give rise to cross linked silicone polymer on hydrolysis is : **(2008)**

(A) R_3SiCl **(B)** R_4Si **(C)** $RSiCl_3$ **(D)** R_2SiCl_2

14. Which of the following is the correct statement ? **(2008)**

(A) $B_2H_6 \cdot 2NH_3$ is known as 'inorganic benzene'.

(B) Boric acid is a protonic acid.

(C) Beryllium exhibits coordination number of six.

(D) Chlorides of both beryllium and aluminium have bridged chloride structures in solid phase.

15. The bond dissociation energy of $B-F$ in BF_3 is 646 kJ mol^{-} whereas that of $C-F$ in CF_4 is 515 kJ mol^{-1}. The correct reason for higher $B-F$ bond dissociation energy as compared to that of $C-F$ is : **(2009)**

(A) smaller size of B-atom compared to that of C-atom

(B) stronger σ bond between B and F in BF_3 as compared to that between C and F in CF_4

(C) significant $p\pi - p\pi$ interaction between B and F in BF_3 whereas there is no possibility of such interaction between C and F in CF_4

(D) lower degree of $p\pi - p\pi$ interaction between B and F in BF_3 than that between C and F in CF_4