The p-Block Elements – Carbon Family

Q.1. Which of the following is most stable?

a) Sn^{2+}
b) Ge^{2+}
c) Si^{2+}
d) Pb^{2+}

Q.2. Silica is soluble in

a) HCl
b) HNO_3
c) H_2SO_4
d) HF

Q.3. Butter of tin is

a) $SnCl_4.6H_2O$
b) $SnCl_4.4H_2O$
c) $SnCl_4.5H_2O$
d) $SnCl_4.2H_2O$

Q.4. The basic structural unit of silicates is :

a) SiO_4^{4-}
b) SiO_3^{2-}
c) SiO_4^{2}
d) SiO

Q.5. A metal, M forms chlorides in its +2 and +4 oxidation states. Which of the following statements about these chlorides is correct?

a) MCl_2 is more ionic than MCl_4
b) MCl_2 is more easily hydrolysed than MCl_4
c) MCl_2 is more volatile than MCl_4
d) MCl_2 is more soluble in anhydrous ethanol than MCl_4

Q.6. Name the type of the structure of silicate in which one oxygen atom of SiO_4^{4-} is shared ?

a) Linear chain silicate
b) Sheet silicate
c) Pyrosilicate
d) Three dimensional

Q.7. A salt which gives CO_2 with hot H_2SO_4 and also decolourises acidified $KMnO_4$ on warming is

a) bicarbonate
b) carbonate
c) oxalate
d) acetate

Q.8. R_3SiCl on hydrolysis forms

a) R_3SiOH
b) $R_3Si{-}O{-}SiR_3$
c) $R_2Si{=}O$
d) None of these

Q.9. Which of the following is/ are methanide (s) ?

a) Be_2C
b) Al_4C_3
c) Mg_2C_3
d) Both (a) and (b)

Q.10. Which does not exist

a) $[SnCl_6]^{2-}$
b) $[SiCl_6]^{2-}$
c) $[CCl_6]^{2-}$
d) $[GeCl_6]^{2-}$

Q.11. Catenation i.e., linking of similar atoms depends on size and electronic configuration of atoms. The tendency of catenation in Group 14 elements follows the order :

a) C > Si > Ge > Sn
b) C >> Si > Ge » Sn
c) Si > C > Sn > Ge
d) Ge > Sn > Si > C

Q.12. Graphite is a soft solid lubricant extremely difficult to melt.The reason for this anomalous behaviour is that graphite

a) is an allotropic form of diamond
b) has molecules of variable molecular masses like polymers
c) has carbon atoms arranged in large plates of rings of strongly bound carbon atoms with weak inter plate bonds
d) is a non-crystalline substance

Q.13.Quartz is extensively used as piezoelectric material, it contains

a) Pb
b) Si
c) Sn
d) Al

Q.14.Pyrosilicate ion is

a) SiO_2^{2-}
b) SiO_4^{2-}
c) $Si_2O_6^{7-}$
d) $Si_2O_7^{6-}$

Q.15.**Carborundum** is

a) $Al_2(SO_4)_3$
b) $Al_2O_3,2H_2O$
c) $AlCl_3$
d) SiC

Q.16. An oxide of lead which is used in lead storage battery, in safety matches and is a powerful oxidising agent is

a) PbO
b) PbO_2
c) Pb_3O_4
d) $2PbO.PbO_2$

Q.17. Mark the oxide which is amphoteric in character

a) CO_2
b) SiO_2
c) SnO_2
d) CaO

Q.18.In silicon dioxide

a) there are double bonds between silicon and oxygen atoms
b) silicon atom is bonded to two oxygen atoms
c) each silicon atom is surrounded by two oxygen atoms and each oxygen atom is bonded to two silicon atoms
d) each silicon atom is surrounded by four oxygen atoms and each oxygen atom is bonded to two silicon atoms.

Q.19. Among the following substituted silanes the one which will give rise to cross linked silicone polymer on hydrolysis is

a) R_4Si
b) R_2SiCl_2
c) $RSiCl_3$
d) R_3SiCl

Q.20. Newly shaped glass articles when cooled suddenly become brittle, therefore these are cooled slowly, this process in known as

a) tempering
b) annealing
c) quenching
d) galvanising

Q.21.Which halide is least stable and has doubtful existence

a) Cl_4
b) SiI_4
c) SnI_4
d) PbI_4

Q.22.Tin plague is the

a) conversion of stannous to stannic
b) conversion of white tin to grey tin
c) emission of sound while bending a tin rod
d) atmospheric oxidation of tin

Q.23.Tin cry refers to

a) conversion of white to grey tin
b) tin plating
c) conversion of white tetrahedral tin to white rhombohedral tin
d) emission of sound while bending a tin rod.

Q.24.The reducing power of divalent species decreases in the order

a) Ge > Sn > Pb
b) Sn > Ge > Pb
c) Pb > Sn > Ge
d) None of these

Q.25. Lead pipes are not suitable for drinking water because

a) lead forms basic lead carbonate
b) lead reacts with water containing air to form $Pb(OH)_2$
c) a layer of lead dioxide is deposited over pipes
d) lead reacts with air to form litharge