Octahedron institute, chandan nagar

office no 2, 1st floor chandan complex

Class 11 - Chemistry

P BLOCK 11TH

Maximum Marks: 75 **Time Allowed: 2 hours**

General Instructions:

ANSWER ALL QUESTIONS

Section A

1. Describe the shapes of BF_3 and BH_4^-. Assign the hybridisation of boron in these species. **2**
2. Complete the following reaction: **2**
   i. $C_2H_4 + O_2 \rightarrow$
   ii. $4Al + 3O_2 \rightarrow$
3. Give reasons: Aluminium alloys are used to make aircraft body. **2**
4. Explain the following reactions. CO is heated with ZnO. **2**
5. Suggest a reason as to why CO is poisonous. **2**
6. List the important sources of sulphur. **2**
7. Why is ICl more reactive than I_2? **2**
8. PbO_2 is a stronger oxidizing agent than SnO_2. **2**
9. Why does boron form stable electron deficient compounds? **2**
10. Answer the following questions: **2**
    i. Which neutral molecule would be isoelectronic with ClO^-?
    ii. Of Bi(V) and Sb(V) , which may be a stronger oxidizing agent and why?
11. What happens when sulphur dioxide is passed through an aqueous solution of Fe(III) salt? **2**
12. Why do Boron halides form addition compound with NH_3 ? **2**
13. Name two poisonous gases which can be prepared from chlorine gas. **2**
14. Write balanced equations for: $NaH + B_2H_6 \longrightarrow$ **2**
15. What happens when $NaBH_4$ reacts with iodine? **2**

16. A certain salt X, gives the following results. **2**

    (i) Its aqueous solution is alkaline to litmus.

    (ii) It swells up to a glassy material Y on strong heating.

    (iii) When conc. H_2SO_4 is added to a hot solution of X, white crystal of an acid Z separates out.

17. How is sulphur dioxide is prepared in **2**

    i. Laboratory

    ii. Industrially

18. Complete the following reaction: $NH_3 + NaOCl \rightarrow$ **2**

19. Complete and balance the following equation XeF_4 + H_2O. **2**

20. Bi (v) is a stronger oxidizing agent than Bi(III). Why? **2**

21. What is dry ice? Why is it so called? **2**

22. Write reactions to justify amphoteric nature of aluminium. **2**

23. Write the resonance structure of CO_3^{2-} and HCO_3^- **2**

24. Complete the chemical equation: $Cu^{2+}(aq) + NH_3(aq) \rightarrow$ **2**

25. H_2S is less acidic than H_2Te.(Give reason) **2**

26. Explain why Fluorine forms only one oxoacid. HOF. **2**

27. Give reasons: Conc. HNO_3 can be transported in aluminium container. **2**

28. Chlorine water on standing loses its yellow colour. Why? **2**

29. Assign reason for each of the following: **2**

    a. Noble gases are mostly chemically inert.

    b. Bismuth is a strong oxidizing agent in pentavalent state.

30. Complete the following chemical equations: **2**

    i. $Ca_3P_2(S) + H_2O(l) \rightarrow$

    ii. $Cu^{2+}(aq) + NH_3(aq) \rightarrow$

    iii. $F_2(g) + H_2O(l) \rightarrow$

31. Oxygen molecule has the formula O_2 while sulphur is S_8 .(Give reason) **3**

32. Complete and balance- **3**

    i. $2F_2(g) + 2H_2O\ (l) \rightarrow$

    ii. $4NaCl + MnO_2 + 4H_2SO_4 \rightarrow$

iii. $4HCl + O_2 \xrightarrow{CuCl_2}$

iv. $C_{10}H_{16} + 8Cl_2 \rightarrow$

v. $6NaOH + 3Cl_2 \rightarrow$

33. Justify the placement of O, S, Se, Te and Po in the same group of the periodic table in terms of electronic configuration, oxidation state and hydride formation. **3**

34. Give the resonating structures of NO_2 and N_2O_5. **3**

35. Account for the following: **3**

    i. Thermal stability of water is much higher than that of H_2S.

    ii. White Phosphorus is more reactive than red Phosphorus.