TIME-2 HOUR MM-40

PICS INSTITUTE

XI

CHEMICAL BONDING & REDOX REACTIONS

1. Compare the dipole moment of NH_3 & NF_3 . Explain it?

2. Which out of H_2O & H_2S possess higher Bond angle & Why .

3. Give LCAO treatment for M.O.T.

4. Arrange followings in the order of stability and magnetism . Also Explain it –
   O_2 , Peroxide ion (O_2^{-2}) , Super oxide ion (O_2^{-1}) , O_2^+

5. Explain the structure of Acetylene.

6. How PCl_5 undergo dissociation. Explain?

7. What is meant by Hydrogen Bonding? Why ice floats on water?

8. Explain structure of SF_4. Why one pair occupy Equatorial position & not axial?

9. Predict any change in hybridization as we move from –
   $NH_3 + BF_3 \rightarrow$ [$NH_3 \rightarrow BF_3$]

10 . Why SF_6 is less reactive ?

11. Why Density of Ice is maximum at 4°C ?

12. Define Oxidation and reduction in terms of Oxidation number?

13. What are disproportionating agent? Which out of H_2SO_4 & H_2SO_3 act as disproportionating agent & why ?

14. What is salt bridge? write advantages of salt bridge.

15. Find Oxidation number of underlined species in following -
   (a) $K_4[\underline{Fe}(CN)_6]$ (b) $\underline{Cr}O_5$ (c) $\underline{C}_6 H_{12} O_6$

16. Predict the oxidizing & reducing nature of following –
HNO_2 , H_2S , H_2SO_4

17. Calculate e.m.f of the cell- $Cr|Cr^{3+}$ (0.1M) $||Fe^{2+}$ (0.01M) | Fe ,
Given : $E^o_{Cr^{2+}/Cr}$ = - 0.75 V: $E^o_{Fe^{2+}/Fe}$ = - 0.45 V.

18. Write a short Note On S.H.E?

19. Which of the following is possible to store –
(a) $ZnSO_4$ in Cu vessel .
(b) $AgNO_3$ in Zn vessel.

20. Balance following redox reaction –
(a) $Sn + NO_3^- \rightarrow Sn^{+2} + NH_4^+$ acidic
(b) $Fe(OH)_2 + H_2O_2 \rightarrow Fe(OH)_3 + H_2O$ basic

Send your answer sheets by Post on following address

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