Roll No……

053/A

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SS

2039

ANNUAL EXAMINATION SYSTEM

CHEMISTRY

Time allowed : 3 Hours

Maximum Marks:65

Note : EACH QUESTION CARRIES ONE MARK MULTIPLE CHOICE QUESTIONS

COMPREHENSION: Read the following passage and answer the questions1 to 5 given below

The adsorption is reversible, if the adsorbate can be easily removed from the surface of the adsorbent by physical methods, if the adsorbate can not be removed from the surface of the adsorbent. It is called irreversible adsorption.Examples of irreversible adsorption are adsorption of oxygen and adsorption of CO on tungsten surface The substancesupon whose surface the change of concentration occurs, is called absorbent. The substance taken up on the surface iscalled adsorbate. The common surface between the two phases where the adsorbed molecules concentrate is called theinterface. Physical adsorption occurs when the adsorbate gas molecules are held by physical forces like Van der Waalsforces. Chemical adsorption occurs when the absorbate molecule is held on the adsorbent surface by chemical forces asshort covalent chemical bonding occurs by the sharing of electrons.

Q1. Which of the following is true about Chemical adsorption :
(a) Non Specific (b) Multi layer (c) reversible (d) Adsorbate molecules are held by chemical bonds

Q2. Oxygen adsorbed on the surface of Tungsten is an example of :
(a) Absorption (b) Chemical Adsorption (c) Physical adsorption (d) None of these

Q3. If Tungstun adsorbs CO ,then in this case CO is :
(a) Absorbate (b) Adsorbent (c) Initially adsorbate then adsorbent (d) None of these

Q4. Which of the following is an example of absorption :
(a) water on silica gel (b) water on anhydrous CaCl2 (c) Hydrogen on Nickel (d) Oxygen on metal surface

Q5. When the adsorbate molecules are held by van der waal forces , the adsorption is called as :
(a) Physical Adsorption (b) Chemical adsorption (c) Both (a) and (b) (d) none of these

Q6. Mole fraction of glycerine C3H5(OH)3 in solution containing 36 g of water and 46 g of glycerine is
(a) 0.46 (b) 0.40 (c) 0.20 (d) 0.36

Q7. Of the following 0.10 m aqueous solutions, which one will exhibit the largest freezing point depression ?
(a) KCl (b) $C_6H_{12}O6$ (c) $Al_2(SO4)_3$ (d) K_2SO_4

Q8. A commercially available sample of H_2SO_4 is 15%by weight (density =1.10gmL^{-1}) its molality will be:
(a) 2.4m (b) 1.08m (c) 3.3m (d) 1.8m

Q9. Which of the following is Haematite:
(a) Fe_3O_4 (b) Fe_2O_3 (c) CuO (d) FeS_2

Q10.Which of the following is not a sulphide ore :
(a) Galena (b) Iron pyrites (c) Magnetite (d) Copper glance

Q11. Molar conductivity of 0.15 M solution of KCl at 298 K , if its conductivity is 0.0152 Scm^{-1}will be
(a) 124 $Scm^2\,mol^{-1}$ (b) 204 $Scm^2\,mol^{-1}$ (c) 101 $Scm^2\,mol^{-1}$ (d) 300 Scm^2mol^{-1}

Q12. Standard electrode potential of Ni^{2+}/Ni electrode, if the cell potential of the cell Ni|Ni^{2+}(0.01M) || $Cu^{2+(0.1M)}$| Cu is 0.59 v given : $E^0{}_{Cu^{2+}}/Cu$ = 0.34V is
(a) -0.2205V (b) 0.3205V (c) + 0.014 V (d) - 0.34V

Q13. A first order reaction takes 40 min for 30% completion .What will be its $t_{1/2}$:
(a) 77.7 min (b) 52.5 min (c) 46.2min (d) 22.7 min

Q14. The rate constant for a reaction becomes double when temperature is raised from 27^0C to $37^{0C\ .lits}$activation energy will be :
(a) 106.5 $kJmol^{-1}$ (b) 53.6 $kJmol^{-1}$ (c) 46.2$kJmol^{-1}$ (d) 98.7$kJmol^{-1}$

Q15. The Increasing order of reducing power of the halogen acids is
(a) HF <HCI <HBr <HI (b) HI<HBr <HCI <HF (c) HBr <HCI <HF <HI (d) HCI < HBr <HF <HI

Q16.The Hybridization of Xe in XeO_2F_4 is :
(a) SP^3 (b) SP^3d (c) SP^3d^2 (d) SP^3d^3
Q17. Fluorine is the best oxidizing agent because of its :
(a) Highest electron affinity (b) Highest reduction potential (c) lowest electron affinity (d) Highestoxidation potential
Q18. NCl5 does not exist because :
(a) Nitrogen has high I.E (b) Small size (c) Absence of vacant d -orbitals (d) High electronegativity
Q19. In XeF2 has hybridization
(a) SP^3 (b) SP^3d (c) SP^3d^2 (d) SP^3d^3 Q20. H_3PO_2 is
Q20. H_3PO_2 is
(a) Monobasic (b) Dibasic (c) Tribasic (d) None of these
Q21. Which hydride of group 15 is most basic :
(a) NH_3 (b) PH_3 (c) SbH_3 (d) AsH_3
Q22. Out of the following which one has highest boiling point :
(a) NH_3 (b) PH_3 (c) SbH_3 (d) AsH_3
Q23. The first compound of Xe was :
(a) $Xe^+{}_2[PtF_6]$ (b) XeO_2F_4 (c) XeO_4 (d) $Xe[PtF_6]$
Q24. Cause of lanthanoid contraction is :
(a) increasing nuclear charge (b) decreasing nuclear charge
(c) poor shielding effect of 4f subshell (d)increasing screening effect
Q25. The electronic configuration of $Gd^{2+}$is (Z= 64 for Gd)
(a) $[Xe]\ 4f^1$(b) $[Xe]\ 4f^75d^1$(c) $[Xe]\ 4f^8$(d) $[Xe]\ 4f^75d^16s^2$
Q26. In which of the following case d-d transitions will occur ;
(a) Cu^+(b) Zn^{2+} (c) Cu^{2+} (d) Cd^{2+}
Q27. Out of the following which one is not considered as transition element :
(a) Cu (b) Ag (c) Au (d) Hg
Q28 The magnetic moment of a transition metal ion has been found to be 3.87 BM .It is probably
(a) Fe^{3+} (b) Cr^{3+} (c) Ti^{2+} (d) Ni^{2+}
Q29. $K_2Cr_2O_7$ is prepare from :
(a) CrO_5 (b) $FeO.Cr_2O_7$ (c) $FeO.Cr_2O_3$ (d) K_2CrO_4
Q30. Out of the following which one is diamagnetic :
(a) Cu^{2+} (b) Fe^{2+} (c) Zn^{2+} (d) Mn^{2+}
Q31. The products formed in the following reaction at 873K and 6-7 bar Xe + F2 ? are :
(1 : 5)
(a) XeF_2 (b) XeF_4 (c) XeF_6 (d) XeO_2F_4
Q32.The common oxidation state shown by lanthanoids is :
(a) +1 (b) +5 (c) +3 (d) +7 Q33.
Q33. $[Pt(NH_3)_4][CuCl_4]$ and $[Cu(NH_3)_4][PtCl_4]$ are :
(a) Ionization isomers (b) Coordination isomers (c) linkage isomers (d) Hydrate isomers
Q34.Which of the following ligands form a chelate :
(a) Acetate (b) Oxalate (c) Cyanide (d) Ammonia
Q35. IUPAC name of $Na_3[Fe(C2O4)_3]$
(a) sodium trioxalatoferrous(III) (b) sodium trioxalatoferrate(III)
(c) sodium trioxalatoferrate(II) (d) trisodiumtrioxalatoferrate(III)