

CET MODEL QUESTION PAPER

- Set of quantum numbers (n, l, m, s) for the valence electron of potassium is
1] 3,1,1, +½ 2] 3,0,0, +½ 3] 4, 0, 0, -½ 4] 4, 0, 1, + ½
- If 2 moles of an ideal gas at 546 K occupy a volume of 44.8 litres, the pressure must be
1] 2 atmospheres 2] 3 atmospheres 3] 4 atmospheres 4] 1 atmosphere
- Gold dissolves in NaCN solution forming
1] $\text{Na}_3[\text{Au}(\text{CN})_6]$ 2] $\text{Na}_2[\text{Au}(\text{CN})_4]$ 3] $\text{Na}_2[\text{Au}(\text{CN})_2]$ 4] $\text{Na}[\text{Au}(\text{CN})_2]$
- Commercial sulphuric acid is 36 N 50 cm³ of this is diluted to 2 N solution. Volume of water to be added is
1] 900 cm³ 2] 1800 cm³ 3] 850 cm³ 4] 950 cm³
- Unit of rate constant depends on
1] order of reaction 2] number of reactants
3] concentration terms 4] molecularity of the reaction
- In the reaction $\text{CO}_3^{2-} + \text{H}_2\text{O} \rightleftharpoons \text{HCO}_3^- + \text{OH}^-$ the two acids are
1] HCO_3^- and OH^- 2] CO_3^{2-} and H_2O 3] H_2O and HCO_3^- 4] CO and OH^-
- For the change ice \rightarrow water, the change in entropy is 22 J K⁻¹ mol⁻¹ at 273 K The enthalpy change for this change is
1] - 6 KJ 2] + 6 KJ 3] + 6 J 4] - 6 J
- In acid medium, solution of potassium permanganate (mol. Wt. 158) reacts with reducing agents according to the equation. $\text{MnO}_4^- + 8\text{H}^+ + 5\text{e}^- \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$. The mass of KMnO_4 required to prepare 500 ml of 0.2 N solution is
1] 3.16 grams 2] 15.8 grams 3] 6.32 grams 4] 31.6 grams
- Iron belongs to 1] s - block 2] p - block 3] d - block 4] f - block
- Which of the following bio - molecules contains a non - transition metal ion
1] Insulin 2] Vitamin B₁₂ 3] Hemoglobin 4] Myoglobin
- The ease of dehydration of alcohols is in the order of
1] 3° > 2° > 1° 2] 1° > 2° > 3° 3] 2° > 1° > 3° 4] 3° > 1° > 2°
- For an endothermic reaction, where ΔH represents the enthalpy of the reaction in KJ / mole, the minimum value for the energy of activation will be
1] less than ΔH 2] zero 3] more than ΔH 4] equal to ΔH
- Zone refining is a method to obtain
1] very high temperature 2] ultra pure Al
- An organic compound 'A' has the empirical formula CH₂O and its vapour density is 30. It does not reduce Fehling's solution but gives effervescence with NaHCO₃ solution. The compound 'A' is
1] H-CHO 2] CH₃-CHO 3] H-COOH 4] CH₃-COOH
- Which one of the following metals is extracted by auto reduction process?
1] Copper 2] Iron 3] Aluminum 4] Magnesium

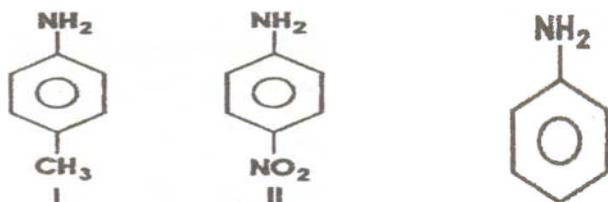
16. Fehling's solution is prepared by mixing
 1] CuO and NaOH solution. 2] CuSO_4 and NaOH solution.
 3] CuSO_4 solution, NaOH solution. and sodium potassium tartarate
 4] CuO and sodium potassium tartarate
17. The IUPAC name of the compound
 $\begin{array}{c} \text{CH}(\text{CH}_3)_2 \\ | \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{H}_3 \\ | \\ \text{CH}_3 \end{array}$ is
 1] 2 - isopropyl 2 - methyl butane
 3] 2, 3, 3 - trimethyl pentane
18. 2 moles of N_2 and 2 moles of H_2 are taken in a closed vessel of 5 litre capacity and suitable conditions are provided for the reaction. When equilibrium is reached, it is found that half a mole of N_2 is used up. The equilibrium concentration of ammonia is
 1] 0.4 M 2] 0.3 M 3] 0.25 M 4] 0.2 M
19. A mixture of three gases A, B and C has a pressure of 10 atms. The total number of moles of all the gases is 10. If the partial pressure of A and B are 3.0 and 1.0 atms respectively and if C has molecular mass of 2.0, what is the mass of C in grams present in the mixture?
 1] 12g 2] 8g 3] 6g 4] 3g
20. Which of the following act as negative catalyst?
 1] Glycerol in the decomposition of H_2O_2 2] Lead tetra ethyl as an antiknock.
 3] Ethanol in the oxidation of CH_3C 4] All of these
22. The precipitate of AgCl ($K_{sp} = 1.8 \times 10^{-11}$) is obtained when equal volumes of the following are mixed,
 1] $10^{-6} \text{ M Ag}^+ + 10^6 \text{ M Cl}^-$ 2] $0.5 \times 10^5 \text{ M Ag}^+ + 0.5 \times 10^{-5} \text{ M Cl}^-$
 3] $10^7 \text{ M Ag}^+ + 10^{-7} \text{ M Cl}^-$ 4] $10^5 \text{ M Ag}^+ + 10^5 \text{ M Cl}^-$
23. The complex ion $[\text{Co}(\text{NH}_3)_6]^{3+}$ is formed by $\text{sp}^3 d^2$ hybridisation. Hence the ion should possess
 1] Tetragonal geometry 2] Tetrahedral geometry
 3] Octahedral geometry 4] Square planar geometry
24. Which of the following has a bond order of zero
 1] N_2 2] O_2 3] F_2 4] Ne_2
25. Elements whose electro negativities are 1.2 and 3.0, bond formed between them would be
 1] ionic 2] covalent 3] coordinate 4] metallic
26. The easily liquefiable gases are more easily adsorbed than permanent gases. Among the following which is better absorbed?
 1] H_2 2] He 3] NH_3 4] N_2
27. The rate constant for the decomposition of H_2O_2 at a certain temperature is $2.4 \times 10^{-4} \text{ sec}^{-1}$. Initially 0.06 mol of H_2O_2 is present in 250 CC of the solution. The initial rate is
 1] 1.44×10^5 2] 5.76×10^{-5} 3] 2.46×10^{-4} 4] 2.88×10^{-5}
28. The empirical formula of an organic compound containing carbon and hydrogen is CH_2 . The mass of one litre of this organic gas at STP is exactly equal to that of one liter of nitrogen at STP. Therefore, the molecular formula of the organic gas is
 1] $\text{C}_4 \text{H}_8$ 2] $\text{C}_3 \text{H}_6$ 3] $\text{C}_2 \text{H}_4$ 4] $\text{C}_6 \text{H}_{12}$

29. 100 cm^3 of 1 N HCl is added to 100 cm^3 of 1 N NaOH solution. The rise in temperature is $t_1^\circ\text{C}$.
 200 cm^3 of 2 N HCl is added to 200 cm^3 of 2 N NaOH solution. The rise in temperature is $t_2^\circ\text{C}$.
 Then 1) $2 t_1 = t_2$ 2) $t_1 = 2t_2$ 3) $t_1^2 = t_2$ 4) $t_2 = 4t_1$

30. For a gaseous reaction $K_c > K_p$, the rate of the reaction is favored by
 1) low pressure 2) low temperature 3) high pressure 4) high temperature

31. Primary, secondary and Tertiary alcohols can't be distinguished by the action of
 1) Cu 2) acidic KMnO_4 3) HCl in presence of anhydrous ZnCl_2 4) PCl_5

32. The order of decreasing basicity of the following compounds is



1) I > II > III 2) I > III > II 3) III > II > I 4) II > I > III

33. The $[\text{H}^+]$ of a solution is increased to ten times its initial value by adding an acid. Its pH will
 1) increase by one 2) increase by ten 3) decrease by one 4) decrease by ten

34. The maximum possible number of hydrogen bonds formed by a water molecule is
 1) 1 2) 2 3) 3 4) 4

35. The equivalent weight of a metal is 9. The molecular weight of its chloride is 133.15. Its atomic mass is
 1) 27 2) 24 3) 18 4) 9

36. Which one of the following does not undergo addition reaction with sodium bisulphate
 1) Acetophenone 2) Glucose 3) Fructose 4) All the above

37. Which one of the following has highest capacity to precipitate As_2S_3 sol
 1) CaCl_2 2) AlCl_3 3) K_2SO_4 4) Na_3PO_4

38. Which of the following is the weakest acid?
 1) Phenol 2) p-chlorophenol 3) p-cresol 4) p-nitrophenol

39. Isopropyl alcohol on passing over heated copper at 300°C gives
 1) Propane 2) Acetaldehyde 3) Acetone 4) Propanone

40. Anti-Markovnikov addition of HBr is not observed in
 1) Propene 2) 1-Butene 3) 2-Butene 4) Pent-2-ene

41. Isoelectric point is the pH at which form
 1) An amino acid becomes acidic 2) An amino acid becomes basic
 3) Amino acid will have zwitter ion form 4) Amino acid will have cation

42. Carboxylic acids are functional isomers of
 1) Esters 2) Ethers 3) Acid anhydrides 4) Alcohols

43. The compound which gives red on moderate heating is
 1) Zinc oxide 2) Mercuric oxide 3) Aluminum oxide 4) Ferric oxide

44. Zinc does not show variable valency like other d-block elements because
 1) it is a soft metal 2) it is low melting
 3) two electrons are present in the outermost orbit 4) d-orbital is complete in zinc

45. In which of the following reactions, inversion of configuration (Walden inversion) takes place
 1] S N 1 reaction 2] S N 2 reaction 3] E1 reaction 4] E 2 reaction
46. In which of the following, electrometric effect is observed
 1] addition of HCl to ethene 2] addition of HBr to propene
 3] addition of HCN to acetaldehyde 4] all the above
47. Glyceryl triolein on complete hydrogenation gives
 1] glyceryl tripinolein 2] glyceryl tripalmitin
 3] glyceryl tristearin 4] glyceryl trimyristin
48. Carbyl amine test is used in the detection of
 1] aliphatic primary amine 2] aliphatic secondary amine
 3] both aliphatic and aromatic primary amines 4] aromatic primary amine
49. Which of the following rare gas is the most abundant in air?
 1] He 2] Ne 3] Ar 4] Kr
50. If 3g of glucose (mol. Wt. 180) is dissolved in 60 g of water at 15°C, the osmotic pressure of the solution will be
 1] 0.34 atm 2] 0.65 atm 3] 5.57 atm 4] 6.5 atm
51. The value of Vanderwaal's constant 'a' for the gases O₂, N₂, NH₃ and C₂H₆ are 1.36, 1.39, 4.17 and 2.253 $\text{atm} \cdot \text{m}^3 \cdot \text{mol}^{-2}$ respectively. The gas which can most easily be liquefied is
 1] O₂ 2] N₂ 3] NH₃ 4] CH₄
52. Impurities of silver in lead are removed by
 1] Parke's process 2] Solvay process 3] Cyanide process 4] Amalgamation process
53. When con. H₂SO₄ comes in contact with sugar, it becomes black due to
 1] Hydrolysis 2] Hydration 3] Decolourisation 4] Dehydration
54. IUPAC name of Na₃ [Co (NO₂)₆] is
 1] Sodium cobaltinitrite 2] Sodium hexanitrito cobaltate (III)
 3] Sodium hexanitro cobaltate (III) 4] Sodium hexanitrito cobaltate (II)
55. According to Lowry and Bronsted concept, the chloride ion in aqueous solution is
 1] Strong base 2] Weak base 3] Strong acids 4] Weak acid
56. When K₂Cr₂O₇ crystals are heated with con HCl, the gas evolved is
 1] CrO₂Cl₂ 2] O₂ 3] Cl₂ 4] HCl
57. In Maltose, the glycosidic linkage takes place between the two glucose units at positions
 1] 1,1 2] 1,2 3] 1,3 4] 1,4
58. Which of the following is diamagnetic?
 1] O₂ 2] O⁺₂ 3] O²⁻₂ 4] O⁻₂
59. The number of molecules in a unit cell of NaCl are
 1] 4 2] 3 3] 1 4] 6
60. The Position of a double bond in an alkene is located using
 1] Ozonolysis 2] Oxidation 3] Addition reaction 4] Decarboxylation