MAJOR TEST PAPER

ATOMOS CLASSES

PROVEN BEST CHEMISTRY LEARNING SOLUTION

02

DATE: 08-04-2017 **Max. Marks : 180**

Next Major Test Date: 11-04-2017 (Timing : 9 to 10:30)

1. A Solution containing 30 g of non-volatile solute in exactly 90 g water has a vapour pressure of 21.85 Hg at 25°C. Further 18 g of water is then added to the solution. The resulting solution has a vapour pressure of 22.15 mm Hg at 25°C. Calculate the molecular weight of the solute.

(a) 74.2 (b) 75.6
(c) 67.3 (d) 78.7

2. An aqueous solution of a weak monobasic acid containing 0.1 g in 21.7 g of water freezes at 272.813 K. If the value of K_f for water is 1.86 K/m, what is the molecular mass of the monobasic acid

(a) 50 g/mole (b) 45 g/mole
(c) 55 g/mol (d) 60 g/mole

3. A solid is made of two elements *P* and *Q*. Atoms *P* are in ccp arrangement and atoms *Q* occupy all the octahedral voids and half of the tetrahedral voids, then the simplest formula of the compound is

(a) PQ_2 (b) P_2Q
(c) PQ (d) P_2Q_2

4. A 1.2 gram of solution of NaCl is isotonic with 7.2 gram of solution of glucose. Calculate the van't Hoff factor of NaCl solution

(a) 2.36 (b) 1.50
(c) 1.95 (d) 1.00

5. K_f of 1, 4-dioxane is 4.9 mol^{-1} for 1000 g. The depression in freezing point for a 0.001 m solution in dioxane is

(a) 0.0049 (b) 4.9 + 0.001
(c) 4.9 (d) 0.49

6. If the ratio of coordination no. *P* to that of *Q* be Y : Z, then the formula of the solid is

(a) P_yQ_z (b) P_zQ_y
(c) $P_{1/y}Q_{1/z}$ (d) None

7. Which one of the following metals could not be obtained on electrolysis of aqueous solution of its salts?

(a) Ag (b) Mg
(c) Cu (d) Cr

8. Rate law for a gaseous reaction

$A + B \rightarrow C + D$ is given by

Rate = $K[A]^2[B]^0$

The volume of reaction vessel containing these gases is suddenly reduced to one-fourth of the initial volume. The rate of reaction relative to original rate would be

(a) $\frac{1}{16}$ (b) $\frac{16}{1}$
(c) $\frac{1}{8}$ (d) $\frac{8}{1}$

9. The vapour pressure of solvent is 20 torr, while that of its dilute solution is 17 torr, the mole fraction of the solvent is

(a) 0.6 (b) 0.4
(c) 0.5 (d) 0.7

10. On introducing a catalyst at 500 K the rate of a first-order reaction increases by 1.718 times. The activation energy in the presence of catalyst is 4.15 kJ mol^{-1}. The slope of the plot of ln *k* (in sec^{-1}) vs. $\frac{1}{T}$ (*T* is Kelvin) in the absence of catalyst is (R = 8.32 J mol^{-1} K^{-1})

(a) +1 (b) -1
(c) +1000 (d) -1000

11. The function of fluorspar in the electrolytic reduction of alumina dissolved in fused cryolite (Na_3AlF_6) is

(a) as a catalyst

(b) to lower the temperature of the melt and improve the conductivity of cell

(c) to decrease the rate of oxidation of carbon at the anode

(d) to decrease the rate of oxidation of carbon at the cathode

12. The decomposition of hydrogen peroxide can be slowed down by the addition of a small amount of acetamide. The latter acts as a

(a) Detainer (b) Stopper
(c) Promoter (c) Inhibitor

13. In extractive metallurgy of lead, the reduction of the roasted ore to the molten metal by heating with coke is called:

(a) smelting (b) roasting
(c) calcinations (d) none of these

14. The ability of an ion to bring about coagulation of a given colloid depends upon

(a) its size
(b) the magnitude of its charge only
(c) the sign of tis charge
(d) both are magnitude and the sign of its charge

15. The main reason for not using a mercury electrolytic cell in NaOh manufacture is that

(a) Hg is toxic
(b) Hg is a liquid
(c) Hg has a high vapour pressure
(d) Hg is a good conductor of electricity

16. Which compound acts as an oxidizing as well as reducing agent?

(a) SO_2 (b) $MnSO_2$
(c) Al_2O_3 (d) CrO_3

17. Which of the following statements is not correct about the electronic configuration of gaseous chromium atoms?

(a) it has 5 electrons in 3*d* and one electron in 4*s* orbits

(b) The principal quantum numbers of its valence electrons are 3 and 4

(c) It has 6 electrons in 3*d* orbital

(d) Its valance electrons have quantum number '*l*', 0 and 2

18. The most efficient agent for the absorption of SO_3

(a) 80% of H_2SO_4

(b) 98% of H_2SO_4

(c) 50% of H_2SO_4

(d) 20% of $H_2S_2O_7$

19. An organic halide is shaken with aqueous NaOH followed by the addition of dil. HNO_3 and silver nitrate solution give white ppt. The substance can be

(a) $C_6H_5(CH_2)Br$

(b) $C_6H_5CH_2Cl$

(c) C_6H_5Cl

(d) None of these

20. Phenol can be distinguished from alcohol with

(a) Tollens reagent (b) Schiff's base
(c) Neutral $FeCl_3$ (d) HCl

21. Mixture X = 0.02 mol of $[Co(NH_3)_5SO_4]Br$ and 0.02 mol of $[Co(NH_3)_5SO_4]$ was prepared in 2 litre of solution

1 litre of mixture *X* + excess $AgNO_3 \rightarrow Y$.

1 litre of mixture *X* + excess of $BaCl_2 \rightarrow Z$

(a) 0.01, 0.01 (b) 0.02, 0.01
(c) 0.01, 0.02 (d) 0.02, 0.02

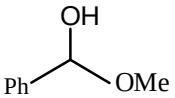
22. The strongest acid among the following

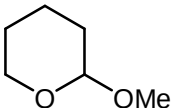
(a) *p*-chlorophenol (b) *p*-nitrophenol
(c) *m*-nitrophenol (d) *o*-nitrophenol

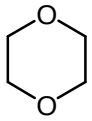
23. When $CHCl_3$ is boiled with NaOH, it gives

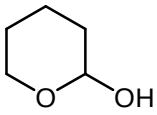
(a) Formic acid
(b) Trihydroxy methane
(c) Acetylene
(d) Sodium formate

24. Of the following, which compound is an acetal?

(a) 

(b) 

(c) 

(d) 

25. Which of the following reagents on treatment with benzenamine in basic medium produces phenyl isocyanide?

(a) CCl_4

(b) Trichloromethane

(c) Methylene dischloride

(d) Hexachloroethane

26. Which of the following is the weakest base?

(a) NH_3 (b) $C_6H_5NH_2$

(c) $C_6H_5CH_2NH_2$ (d) CH_3NH_2

27. Which of the following sugars has the largest relative sweetness with respect to sucrose?

(a) Glucose (b) Fructose

(c) Galactose (d) Maltose

28. Which of the following organometallic compound is σ and π bonded?

(a) $Fe(CH_3)_3$

(b) $[Fe(\eta^5 - C_2H_5)_2]$

(c) $[Co(CO)_5NH_3]^{2+}$

(d) $K[PtCl_3(n_2 - C_2H_4)]$

29. Which reagent can distinguish between pentanoic acid and pentanamide?

(a) Cold dil. NaOH

(b) Cold dil. $NaHCO_3$

(c) Cold conc. H_2SO_4

(d) All

30. Cetyltrimethyl ammonium bromide is a popular

(a) Non-ionic detergent

(b) Anionic detergent

(c) Cationic detergent

(d) Sweetener

31. In the manufacture of polytene by the Ziegler process using ethylene, the temperature for proper polymerization required is

(a) Below 10°C

(b) 10°C and 50°C

(c) 50°C and 80°C

(d) 80°C and 140°C

32. A compound contains 3.2% of oxygen. The minimum mol. wt. of the compound is

(a) 300 (b) 440

(c) 350 (d) 500

33. Atoms consists of protons, neutrons and electrons. If the mass of neutrons and electrons were made half and two times respectively to their actual masses, then the atomic mass of $_6C^{12}$

(a) Will remain approximately the same

(b) Will become approximately two times

(c) Will remain approximately half

(d) Will be reduced by 25%

34. Which of following oxides is amphoteric in character?

(a) CaO (b) CO_2

(c) SiO_2 (d) SnO_2

35. Weight of 1 atom of an element is 6.644×10^{-23} G. What is number of atoms of element in 40 kg of it?

(a) 10^3 g atom (b) 10^2 g atom

(c) 10^4 g atom (d) 10 g atom

36. Which has highest melting point?

(a) LiCl (b) Be $BeCl_2$

(c) BCl_3 (d) CCl_4

37. Among the following species, identify the isostructural pairs

NF_3, NO_3^-, BF_3, H_3O^+, HN_3 NF_3, NO_3^-

(a) $[NF_3, NO_3^-]$ and $[BF_3, H_3O^+]$

(b) $[NF_3, HN_3]$ and $[NO_3^-, BF_3]$

(c) $[NF_3, H_3O^+]$ and $[NO_3^-, BF_3]$

(d) $[NF_3, H_3O^+]$ and $[HN_3, BF_3]$

38. The position of both an electron and a helium atom is known within 1.0 nm and the

momentum of the electron is known within 50×10^{-26} kg ms^{-1}. The minimum uncertainty in the measurement of the momentum of the helium atom is

(a) 50 kg ms^{-1}
(b) 60 kg ms^{-1}
(c) 80×10^{-26} kg ms^{-1}
(d) 50×10^{-26} kg ms^{-1}

39. The bond order in CO_3^{2-} ion between C - O is

(a) Zero (b) 0.88
(c) 1.33 (d) 2

40. For two gases A and B with molecular weights M_A and M_B it is observed that at a certain temperature T_1 the mean velocity of A is equal to the root mean square velocity of B. Thus the mean velocity of A can be made equal to the mean velocity of B if

(a) A is at temperature T and B at T', $T > T'$
(b) A is lowered to a temperature T_2, $T_2 < T$
(c) Both A and B are raised to a higher temperature
(d) Both A and B are placed at lower temperature

41. Ionisation energy of Al = 5137 kJ mole^{-1} (ΔH) and hydration of Al^{3+} = - 4665 kJ mole^{-1}. $(\Delta H)_{hydration}$ for Cl^- $= -3814$ kJ mol^{-1}. Which of the following statement is correct?

(a) $AlCl_3$ would remain covalent in aqueous solution
(b) Only at infinite dilution $AlCl_3$, undergoes ionisation
(c) In aqueous solution $AlCl_3$ becomes ionic
(d) None of these

42. A vessel has N_2 has and water vapours at total pressure of 1 atm. The partial pressure of water vapours is 0.3 atm. The contents of this vessel are transferred to another vessel having one third of the capacity of original volume, completely at the same temperature the total pressure of this system in the new vessel is

(a) 3.0 atm (b) 1 atm
(c) 3.33 atm (d) 2.4 atm

43. $CH_3COOH(aq) + C_2H_5OH(aq) \rightleftharpoons CH_3COOC_2H_5(l) + H_2O(aq)$

In the given reaction, one mole of each of acetic acid and alchohol are heated in the presence of litre conc. H_2SO_4. On equilibrium being attained

(a) 1 mole of ethyl acetate is formed
(b) 2 moles of ethyl acetate are formed
(c) 1/2 mole of ethyl acetate is formed
(d) 2/3 mole of ethyl acetate is formed

44. What is the amount of heat to be supplied to prepare 128 g of CaC_2 by using CaC_3 and followed by reduction with carbon. Reactions are

$CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$

$\Delta H^\circ = 42.8$ k cals

$CaO(s) + 3C(s) \rightleftharpoons CaC_2(s) + CO(g)$

$\Delta H^\circ = 111$kcals

(a) 102.6 kcals (b) 221.78 kcals
(c) 307.6 kcals (d) 453.46kcals

45. A mixture of 0.3 mole of H_2 and 01.3 mole of I_2 is allowed to react in a 10 litre evacuated flask at 500°C. The reaction is $H_2 + I_2 \rightleftharpoons 2HI$, the K is found to be 64. The amount of un-reacted I_2 at equilibrium is

(a) 0.15 mole (b) 0.06 mole
(c) 0.03 mole (d) 0.2 mole

NEET FULL TEST-2 [ANSWER KEY]						
1. (3)	2. (4)	3. (1)	4. (3)	5. (1)	6. (2)	7. (2)
8. (2)	9. (2)	10. (4)	11. (2)	12. (4)	13. (1)	14. (4)
15. (4)	16. (1)	17. (3)	18. (2)	19. (2)	20. (3)	21. (1)
22. (2)	23. (2)	24. (2)	25. (2)	26. (2)	27. (2)	28. (2)
29. (4)	30. (3)	31. (3)	32. (4)	33. (4)	34. (4)	35. (1)
36. (2)	37. (3)	38. (4)	39. (3)	40. (2)	41. (3)	42. (4)
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