CHEMISTRY

BOOKS - NTA MOCK TESTS

NEET MOCK TEST 4

Chemistry

1. pK_a of a weak acid (HA) and pK_b of a weak base (BOH) are 3.2 and 3.4 respectively. The pH of their salt (AB) solution is

A. 6.9

B. 7.0

C. 1.0

D. 7.2

Answer: A

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2. $CH_3Br \xrightarrow{KCN} A \xrightarrow[LiAlH_4]{4[H]} CH_3CH_2NH_2$

IUPAC name of A is

A. Methyl cyanide

B. Methyl isonitrile

C. Acetonitrile

D. Ethane nitrile

Answer: D

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3. Which of the following exhibits greater coagulation power towards a negative colloid?

A. $ZnSO_4$

B. Na_3PO_4

C. $AlCl_3$

D. $K_4\left[Fe(CN)_6\right]$

Answer: C

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4. Two half cells have reduction potentials $-0.76V$ and $-0.13V$ respectively . A galvanic cell is made from these two half cells . Which of the following statements is correct ?

A. Electrode of half-cell potential $-0.76V$ acts as cathode

B. Electrode of half-cell potential $-0.76V$ acts as anode

C. Electrode of half-cell potential $-0.13V$ acts as anode

D. Electrode of half-cell potential $-0.76V$ acts as positive electrode and $-0.13V$ as negative electrode

Answer: B

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5. What will occur if a block of copper metal is dropped into a beaker containing a solution of $1MZnSO_4$?

A. The copper metal will dissolve with evolution of hydrogen gas.

B. The copper metal will dissolve with evolution of hydrogen gas.

C. No reaction will occur

D. The copper metal will dissolve and zinc metal will be deposited

Answer: C

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6. Electrometallurgical process is used to extract

A. Fe

B. Pb

C. Na

D. Ni

Answer: C

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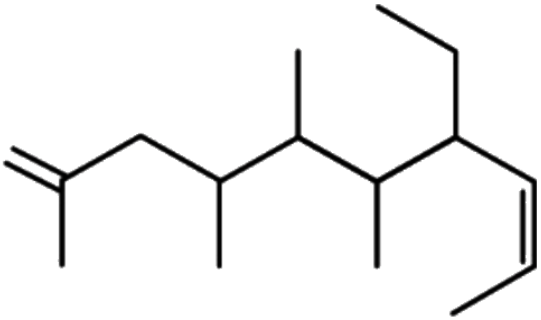
7. The correct IUPAC name of the following compound is :



A. 7-Ethyl-2, 4, 5, 6 - tetramethyldeca - 1, 8-diene

B. 4-Ethyl-5, 6, 7, 9 - tetramethyldeca - 2, 9-diene

C. 2, 4, 5, 6 - tetramethyl-7-ethyldeca-1, 7 - diene

D. none of these

Answer: A

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8. Which of the following sulphates have the highest solubility in water ?

A. $BeSO_4$

B. $MgSO_4$

C. $BaSO_4$

D. $CaSO_4$

Answer: A

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9. In Clemmensen's reduction , the catalyst used is

A. $Zn - Hg + Conc.\ HCl$

B. $NH_2NH_2 + C_2H_5ONa$

C. $PdCl_2 / H_2O$

D. $(C_6H_5)P + C_2H_5ONa$

Answer: A

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10. The functional group which is formed when Phenol is made to react with Chloroform in the presence of dilute sodium hydroxide

A. $-CH_2Cl$

B. $-COOH$

C. $-CHCl_2$

D. $-CHO$

Answer: D

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11. The compound fromed when Ethyl bromide is heated with dry silver oxide is

A. dimethylether

B. diethylether

C. methylalcohol

D. ethylalcohol

Answer: B

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12. One mole of Ethlamine when reacts with nitrous acid will produce dinitrogen gas (at $0^{\circ}C$ and 1 atmsopheric pressure) equal to

A. 22.4 L

B. 1 L

C. 11. 2 L

D. 24.8 L

Answer: A

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13. The correct statement about orthoboric acid is

A. It is a strong monobasic acid

B. it is not a proton donor, but a weak Lewis acid

C. It is a tribasic acid

D. It is harmful for eyes

Answer: B

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14. The energy required to remove and electron from the surface of sodium metal is $2.3eV$. What is the longest wavelength of radiation with which it can shown photoelectric effect ?

A. $5.4 \times 10^{-17} m$

B. $5.\ 4 \times 10^{-8} m$

C. $5.4 \times 10^{-7} m$

D. $5.4 \times 10^{-9} m$

Answer: C

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15. If the dipole moment of Toluene and Nitro - benzene are 0.43 D and 3.93 D respectively, then what is the expected dipole moment of p-Nitrotoluene?

A. 3.50 D

B. 2.18 D

C. 4.36 D

D. 5.30 D

Answer: C

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16. Methanoic acid is heated with conc. H_2SO_4, to form

A. CO

B. CO_2

C. CH_4

D. $(COOH)_2$

Answer: A

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17. Aniline when treated with conc. HNO_3 gives

A. Acetic acid

B. Saccharic acid

C. Gluconic acid

D. Sorbitol

Answer: B

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18. Phenol associates in Benzene to a certain extent to form dimer. A solution containing $2.0 \times 10^{-2} kg$ of Phenol in 1.0

kg of benzene has its freenzing point decreased by 0.69 K. The percentage degree of association of Phenol is $\left(K_f \text{ for benzene} = 5.12 kgmol^{-1}K\right)$

A. 73.3

B. 50.1

C. 42.3

D. 25.1

Answer: A

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19. The increasing order of the first ionisation enthalpies of the elements B, P, S and F (lowest first) is:

A. $B < S < P < F$

B. $F < S < P < B$

C. $P < S < B < F$

D. $B < P < S < F$

Answer: A

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20. When NaCl is heated with sulphuric acid in the presence of MnO_2 a greenish-yellow gas is liberated. The gas is

A. Cl_2

B. NH_3

C. N_2

D. H_2

Answer: A

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21. $C_5H_{10}O$ is carbonyl compound. The number of structural isomers possible for this molecular formula are

A. 5

B. 8

C. 6

D. 7

Answer: D

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22. In the reaction

$4A + 2B + 3C \rightarrow A_4B_2C_3$, what will be the number moles of product formed starting from one mole of A, 0.6 moles of B and 0.72 moles of C?

A. 0.25

B. 0.3

C. 0.24

D. 2.32

Answer: C

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23. The pH of a solution of AgCI(s) with solubility product 1.6×10^{-10} in $0.1MNaCl$ solution would be :

A. $1.26 \times 10^{-5}M$

B. $1.6 \times 10^{-9}M$

C. $1.6 \times 10^{-11}M$

D. $1.26 \times 10^{-15}M$

Answer: B

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24. A certain sample of cuprous sulphide is found to have composition $Cu_{1.8}S,$, because of incorporation of Cu^{2+}

ion in the lattice, What is the mole % of Cu^{2+} in total content in this crystal?

A. 88.88

B. 89.8

C. $63.5\ \%$

D. 11.11

Answer: D

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25. At low pressure and high temperature the Van der Waals equation is finally reduced (simplified) to

A. $\left(p + \frac{a}{V_m^2}\right)(V_m - b) = RT$

B. $p(V_m - b) = RT$

C. $\left(p + \frac{a}{V_m^2}\right)V_m = RT$

D. $pV_m = RT$

Answer: D

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26. Zinc and hydrochloric acid react according to the reaction:

$Zn_{(s)} + 2HCl_{(aq.)} \rightarrow ZnCl_{2(aq.)} + H_{2(g)}$

If 0.30 mole of Zn are added to hydrochloric acid containing 0.52 mole HCl, how many moles of H_2 are produced?

A. 0.2

B. 0.62

C. 0.6

D. 0.26

Answer: D

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27. In a reaction, $Cr_2O_7^{2-}$ is reduced to Cr^{3+}. What is concentration of $0.1MK_2Cr_2O_7$ in equivalent per litre?

$Cr_2O_7^{2-} + 14H^+ + 6e \rightarrow 2Cr^{3+} + 7H_2O$

A. 0.9 N

B. 0.6 N

C. 0.3 N

D. 0. 2 N

Answer: B

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28. A gaseous mixture of 2 moles of A, 3 moles of B, 5 moles of C and 10 moles of D is contained in a vessel. Assuming that gases are ideal and the partial pressure of C is 1.5 atm, total pressure is

A. $3atm$

B. $6atm$

C. $9atm$

D. $15atm$

Answer: B

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29. In which of the following options chlorince will acts as the best leaving group.

A. $CH_3 - Cl$

B. $CH_3 - CH_2 - Cl$

C. $H - \overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}} - Cl$

D. $CH_3 - CH_2 - \overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}} - Cl$

Answer: D

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30. A compound of vanadium chloride has spin only magnetic moment of 1.73 BM. Its formula is

A. VCl_2

B. VCl_5

C. VCl_4

D. VCl_3

Answer: C

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31. The following equilibrium constants are given:

$N_2 + 3H_2 \Leftrightarrow 2NH_3, K_1$

$N_2 + O_2 \Leftrightarrow 2NO, K_2$

$H_2 + 1/2O_2 \Leftrightarrow H_2O, K_3$

The equilibrium constant for the oxidaton of 2 mole NH_3 by oxygen to give NO is

A. $\frac{K_2K_3^3}{K_1}$

B. $\frac{K_2^2K_3^2}{K_1}$

C. $\frac{K_1K_2}{K_3}$

D. $\frac{K_2K_3^2}{K_1}$

Answer: A

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32. Which of the following will not show geometrical isomerism?

A. $\left[Co(ox)_3\right]^{3-}$

B. $\left[Co(en)_2Cl_2\right]Cl$

C. $\left[Cr(NH_3)_4Cl_2\right]Cl$

D. Both (b) and (c)

Answer: A

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33. For a reaction in which all reactants and products are liquids, which one of the following equtions is most applicable?

A. $\Delta H < \Delta E$

B. $\Delta H = \Delta S$

C. $\Delta H \approx \Delta E$

D. Total W = 0

Answer: C

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34. The void space in a primitive unit cell is :

A. 48% void space

B. 24% void space

C. 96% void space

D. 50% void space

Answer: A

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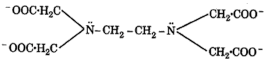
35. In chelate therapy, lead toxicity is removed by using the ligand

A. CH_3COO^-

B. $\begin{array}{l} \\ | \\ COO^- \end{array}$

C. AsO_4^{3-}

D. 

Answer: D

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36. The oxidation of SO_2 to SO_3 is an exothermic reaction. The yield of SO_3 will be maximum if :

A. Temperature is increased and pressure is kept constant

B. Temperature is reduced and pressure is increased

C. Both temperature and pressure are increased

D. Both temperature and pressure are reduced

Answer: B

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37. When $0.004M Na_2SO_4$ is an isotonic acid with $0.01M$ glucose, the degree of dissociation of Na_2SO_4 is

A. $85\ \%$

B. $75\ \%$

C. $60\ \%$

D. $25\ \%$

Answer: B

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38. Which of the following statements regarding nitrogen pentoxide is not correct?

A. Nitrogen pentoxide is a colourless, deliquescent liquid

B. Nitrogen pentoxide is the anhydride of nitric acid

C. Solid N_2O_5 is a covalent molecules

D. The molecule of N_2O_5 in planer

Answer: C

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39. Two different electrolytic cells filled with molten $Cu(NO_3)_2$ and molten $Al(NO_3)_3$ respectively are connected in series. When electricity is passed 2.7 g Al is deposited on electrode. Calculate the weight of Cu deposited on cathode.

$[Cu = 63.5, Al = 27.0 gmol^{-1}]$

A. 190.5 g

B. 9.525 g

C. 63.5 g

D. 31.75 g

Answer: B

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40. Phenyl magnesium bromide reacts with methanol to give :-

A. A mixture of anisol and $Mg(OH)Br$

B. A mixture of benzene and $Mg(Ome)Br$

C. A mixture of toluene and $Mg(OH)Br$

D. A mixture of Phenol and $Mg(Me)Br$

Answer: B

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41. Heat of formation of H_2O is -188kJ/mol and H_2O_2 is -286 kJ/mol. The enthalpy change for the reaction,

$2H_2O_2 \rightarrow 2H_2O + O_2$

A. $-196kJ$

B. $-494kJ$

C. $146kJ$

D. $-98kJ$

Answer: A

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42. Which of the statement is correct ?

I. Melting point of alkane increases with increase of C atoms and with increase in branching.

II. Boiling point of alkane increases with increase of C atoms but with decrease in branching.

III. Cycloalkanes have lower boiling point than normal alkane with same numer of C atoms.

IV. Alkenes have lower boiling point than same number of C atoms in alkanes.

A. (i), (ii)

B. (i),(ii),(iii)

C. (iii),(iv)

D. (iv)

Answer: A

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43. The binding energy of an element of $64MeV$. If $BE/\text{nucleon}$ is 6.4, then the number of nucleons are

A. 10

B. 64

C. 16

D. 6

Answer: A

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44. Consider the following reaction in aqueous solution

$5Br^-(aq) + BrO_3^-(aq) + 6H^+(aq) \rightarrow 3Br_2(aq) + 3H_2O(l)$

If the rate of appearance of Br_2 at a particular time during the reaction is $0.025 M \text{sec}^{-1}$, what is the rate of disappearance (in Msec^{-1}) of Br^- at that time?

A. 0.025Msec^{-1}

B. 0.042Msec^{-1}

C. 0.075Msec^{-1}

D. 0.125Msec^{-1}

Answer: B

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45. The rate constant (K') of one reaction is double of the rate constant (K") of another reaction. Then the relationship between the corresponding activation energies of the two reactions $\left(E_a' \text{and} E_a^{''}\right)$ will be

A. $E_a' > E_a$

B. $E_a' = E_a$

C. $E_a' < E_a$

D. $E_a' < 4E_a$

Answer: C

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