CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 73

Chemistry

1. Calculate partial pressure of B at equilibrium in the following equilibrium

$A(s) \Leftrightarrow B(g) + 2C(g), \quad K_P = 32atm^3.$

A. 2

B. 3

C. 17

D. 5.8

Answer: A

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2. Write the IUPAC name of the following compound

$$OHC - CH_2 - CH_2 - \underset{\displaystyle CH}{\overset{\displaystyle CH_2 - CHO}{|}} - CH_2 - CHO$$

A. 3 - (oxomethyl) hexane - 1, 6 - dial

B. 3 - methylhexane -1,3,6 - trial

C. 3 - (methylformyl) hexane -1, 6 - dial

D. 3 - (formylmethyl) hexane -1, 6 - dial

Answer: D

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3. The element having electronic configuration $[Kr]4d^{10}4f^{14}5s^25p^65d^26s^2$ belongs to

A. s - block

B. p- block

C. d - block

D. f - block

Answer: C

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4. What is the melting point of benzene if $\Delta H_{\text{fusion}} = 9.95\text{kJ}//\text{mol}$ and $\Delta S_{\text{fusion}} 35.7J/K - mol$?

A. $278.7^\circ C$

B. $278.7K$

C. 300 K

D. 298 K

Answer: B

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5. Which one of the following series contains electrophiles only ?

A. $H_2O, SO_3, \overset{+}{N}O_2$

B. NH_3, H_2O, BI_3

C. $AlCl_3, SO_3, Cl^+$

D. $ROH, NH_3, \overset{+}{N}O_2$

Answer: C

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6. Which of the following reacts most vigrously with water

A. Li

B. Na

C. K

D. Rb

Answer: D

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7. ΔU° of combustion of $CH_{4(g)}$ at certain temperature is $-393\ \mathrm{kJ\ mol^{-1}}$. The value of ΔH° is

A. zero

B. $< \Delta_f U^{\circ}$

C. $> \Delta_f U^{\circ}$

D. equal to $\Delta_f U^\circ$

Answer: B

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8. If degree of dissociation of 2M CH_3COOH is 10% then degree of dissociation of this acetic acid in 3 Molar CH_3COONa solution will be

A. $= 10\,\%$

B. $< 10\,\%$

C. $> 10\,\%$

D. Cannot be determine

Answer: B

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9. Pick out incorrect statement

A. Colloidal sols are heterogeneous

B. Colloids carry + ve or - ve charge

C. Colloidal sols show Tyndall effect

D. The size range of colloidal particles $10 - 2000\text{Å}$

Answer: D

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10. Boron does not form B^{3+} ions because

A. it has small size and high ionization energy

B. it has high electronegativity

C. it has high charge density (charge / radius ratio)

D. none of the above

Answer: A

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11. Which of the following statement is incorrect ?

A. Standard Gibbs free energy change is always zero at equilibrium

B. Addition of solid does not affect equilibrium

C. On addition of catalyst the value of equilibrium constant is not affected

D. Equilibrium constant for a reaction with negative ΔH value decreases as the temperature increases

Answer: A

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12. Which type of isomerism is shown by 1,2 - dimethylcyclopropane ?

A. Geometrical isomerism

B. Optical isomerism

C. Position isomerism

D. Conformational isomerism

Answer: A

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13. The decreasing order of the second ionization potentials of K, Ca and Ba is

A. $K > Ca > Ba$

B. $Ca > Ba > K$

C. $Ba > K > Ca$

D. $K > Ba > Ca$

Answer: A

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14. Which of the following statement are correct ?

1. Colligative properties do not depend upon the nature of solute

2. A plot of partial vapour pressure against mole fraction will be linear

3. Vapour pressure of solution increases on account of hydrogen bonding

Select the correct answer using the codes given below

A. 1 and 2

B. 1 ,2 and 3

C. 2 and 3

D. 1 and 3

Answer: A

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15. Monomer related to Nylon - 3 - nylon - 6 is

A. Alanine

B. Glycine

C. Adipic acid

D. Hexa methylene diamine

Answer: B

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16. Which one of the following statement is incorrect ?

A. A solution containing non - volatile solute freezes at a lower temperature than the pure solvent

B. A solution constraining non - volatile solute boils at a higher temperature than the pure solvent

C. 0.1 M NaCl solution and 0.1 M sugar solution have the same boiling point

D. Osmosis cannot take place without a semi - permeable membrane

Answer: C

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17. Pick out the incorrect statement.

A. Except nitrogen , all the elements of group 15 exist in allotropic modification

B. Only at high temperature , greater than 1,070 K, phosphorus dissociates into P_2 molecules

C. Red phosphorus is obtained by heating white phosphorus at 540 - 570 K in the absence of air for several hours

D. White phosphorus is more reactive , but less soluble in CS_2 (and other organic solvents) than red phosphorus

Answer: D

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18. Consider the following sequence of reactions :

$$C_6H_5CH_3 \xrightarrow{Cl_2} p-ClC_6H_4CH_3 \xrightarrow{NBS} (X) \xrightarrow{Mg} (Y) \xrightarrow{(i)\,\text{ethylene oxide}} (Z)$$

Final product (Z) is

A. $p-ClC_6H_4CH_2CH_2OH$

B. $p-ClC_6H_4CH_2CH_2CH_2OH$

C. $p-(HOCH_2CH_2)-C_6H_4CH_2Br$

D. $p-(HOCH_2CH_2)-C_6H_4CH_3$

Answer: B

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19. Which of the following is not correct ?

A. H_2O_2 oxidizes Fe (II) to Fe (III)

B. H_2O_2 is a weak base

C. H_2O_2 can be obtained by the electrolysis of dil . H_2SO_4 .

D. H_2O_2 reduces Mn (VII) to Mn (II)

Answer: B

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20. Which of the following oxides is basic?

A. MnO

B. Mn_2O_3

C. MnO_2

D. Mn_2O_7

Answer: A

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21. Which of the following reaction is employed to produce ozone in the laboratory ?

A. Exposure of air to UV light

B. Reaction of F_2 with H_2O

C. Reaction of SO_2 with H_2O_2

D. Passage of silent electric discharge through oxygen

Answer: D

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22. The solubility in terms of K_{sp} for $A_3B_{(aq)}$ is

A. $\left(\frac{K_{sp}}{3}\right)^{1/4}$

B. $\left(\frac{K_{sp}}{27}\right)^{1/4}$

C. $(27K_{sp})^{1/4}$

D. $(3K_{sp})^{1/4}$

Answer: B

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23. Which one of the following ions has the highest magnetic moment ?

A. Mn^{2+}

B. Zn^{2+}

C. Ca^{2+}

D. K^{+}

Answer: A

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24. Which response given the correct coordination number (C.N) and oxidation number (O.N) of the transition metal atom in $\left[Co(NH_3)_2(H_2O)_2Cl_2\right]^+$?

A. $C.\ N.\ = 3, O.\ N = +1$

B. $C.\ N.\ = 4, O.\ N = +2$

C. $C.\ N.\ = 6, O.\ N = +1$

D. $C.\ N.\ = 6, O.\ N = +3$

Answer: D

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25. For the reaction

$Ag(CN)_2^{\ominus} \Leftrightarrow Ag^{\oplus} + 2CN^{\ominus}$, the K_c at $25^\circ C$ is 4×10^{-19} Calculate $\left[Ag^{\oplus}\right]$ in solution which was originally $0.1M$ in KCN and $0.03M$ in $AgNO_3$.

A. $2.5 \times 10^{-18} M$

B. $6.78 \times 10^{-15} M$

C. $7.5 \times 10^{-14} M$

D. $7.5 \times 10^{-18} M$

Answer: D

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26. Carborundum is obtained when silica is heated at high temperature with

A. carbon

B. carbon monoxide

C. carbon dioxide

D. calcium carbonate

Answer: A

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27. Which of the following does not reduce Tollens reagent .

A. CH_3CHO

B. C_6H_5NHOH

C. HCOOH

D. $C_6H_5NO_2$

Answer: D

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28. Which of the following pentahalides is not formed ?

A. NF_5

B. PF_5

C. AsF_5

D. BiF_5

Answer: A

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29. On reduction with hydrogen , 3.6 g of an oxide of metal left 3.2 g of metal . If the simplest atomic weight of metal is 64, the simplest formula of the oxide is

A. MO

B. M_2O_3

C. M_2O

D. M_2O_5

Answer: C

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30. A halogen compound 'A' on hydrolyses with dilute alkali followed by acidification gives acetic acid. The compound X is:

A. CH_3CCl_3

B. CH_3CHCl_2

C. $ClCH_2CH_2Cl$

D. $ClCH_2CHCl_2$

Answer: A

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31. Which one of the following noble gas is obtained by radioactive disintegration ?

A. Kr

B. An

C. Rn

D. Xe

Answer: C

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32. Which of the following statements is not true about noble gases ?

A. Their ionisation energies are very high

B. Their electron affinities are nearly zero

C. They do not from any chemical compounds

D. They are not easily liquefied

Answer: C

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33. The number of Faradays needed to reduce 4 g equivalents of Cu^{2+} to Cu metal will be

A. 1

B. 2

C. $\frac{1}{2}$

D. 4

Answer: D

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34. In the following sequence of reactions, identify the final product.

Cyclopentance $\xrightarrow{Cl_2/hv} (I) \xrightarrow{alc.KOH,\ \Delta} (II) \xrightarrow{(i)\,O_3} (III)$

A. pentanal

B. pentane -2- one

C. pentan -3-one

D. pentane -1,3,-dial

Answer: D

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35. The species having tetrahedral shape is

A. $[PdCl_4]^{2-}$

B. $\left[Ni(CN)_4\right]^{2-}$

C. $\left[Pd(CN)_4\right]^{2-}$

D. $[NiCl_4]^{2-}$

Answer: D

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36. Consider the following substances

1. Propan -2-ol

2. Propanone

3. 2 - methyl propene

The correct sequence of increasing order of boiling point is

A. $1 > 2 > 3$

B. $1 > 3 > 2$

C. $2 > 1 > 3$

D. $3 > 2 > 1$

Answer: A

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37. Methyl cyanide on hydrolysis gives

A. Methyl amine

B. Acetic acid

C. Formic acid

D. Ethyl amine

Answer: B

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38. The oxidation number of phosphorus in ATP (adenosine triphosphate) is

A. 4

B. 3

C. 5

D. 2

Answer: C

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39. Consider the following haloalkanes,

I. CH_3l II. CH_3F

III. CH_3Cl IV. CH_3Br

The correct sequence of increasing order of dipole moment is

A. $1 < 2 < 3 < 4$

B. $4 < 3 < 2 < 1$

C. $4 < 3 < 1 < 2$

D. $3 < 4 < 1 < 2$

Answer: C

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40. The catalyst used in the manufacture of polyethene of Ziegler method is:

A. titanium tetrachloride and triphenyl aluminium

B. titanium tetrachloride and triethyl aluminium

C. titanium dioxide

D. titanium isopropoxide

Answer: B

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41. Addition of $CdCl_2$ to AgCl yields solid solution where the divalent cations Cd^{2+} occupy the Ag^{+} sites. Which one of the following statements is true ?

A. The number of cationic vacancies is equal in number of that of divalent ions added

B. The number of cationic vacancies is one - half of the number of that of divalent ions added

C. The number of anionic vacancies is equal in number of that of divalent ions added

D. No cationic or anionic vacancies are produced

Answer: A

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42. Which solution will have the lowest pH value ?

A. 0.10 M HCN

B. $0.10MHNO_3$

C. $0.10MNaCl$

D. $0.10\mathrm{M}\ \ H_2CO_3$

Answer: B

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43. When an electron of charge , e and mass , m moves with velocity v around the nuclear charge 'Ze' describing the circular orbit, the potential energy of the electron is

A. Ze^2/r

B. $-Ze^2/r$

C. Ze^2/r^2

D. mv^2/r

Answer: B

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44. A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends. The white ammonium chloride ring first formed will be

A. at the centre of the tube

B. near the hydrogen chloride bottle

C. near the ammonia bottle

D. throughout the length of the tube

Answer: B

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45. Two elemets $X($ atomic weight $=75)$ and $Y($ atomic weight $=16)$ combine to give a compound having $75.8\,\%$ X.` The formula of the compound is

A. XY

B. X_2Y

C. X_2Y_2

D. X_2Y_3

Answer: D

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