CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 32

Chemistry

1. Consider the ground state Cr atom $(Z = 24)$. The number of electron with the azimuthal number $l = 1$ and 2 ,respectively are

A. 12 and 5

B. 16 and 4

C. 16 and 5

D. 12 and 4

Answer: A

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2. Which one of the following ions has the highest value of ionic radius?

A. B^{3+}

B. O^{2-}

C. Li^{+}

D. F^-

Answer: B

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3. Among Al_2O_3, SiO_2, P_2O_3 and SO_2 the correct order of acid strength is

A. $Al_2O_3 < SiO_2 < SO_2 < P_2O_3$

B. $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$

C. $SiO_2 < SO_2 < Al_2O_3 < P_2O_3$

D. $SO_2 < P_2O_3 < SiO_2 < Al_2O_3$

Answer: B

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4. The energy needed for $Li_g \rightarrow Li_g^{3+} + 3e$ is $1.96 \times 10^4 kJmol^{-1}$. If the first ionisation energy of Li is $520 kJmol^{-1}$. Calcuate the second ionisation energy of Li.

(Given : IE_1 for $H = 2.2.18 \times 10^{-18} kJ \text{atom}^{-1}$).

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5. The states of hybridization of boron and oxygen atoms in boric acid (H_3BO_3) are respectively :

A. sp^3 and sp^3

B. sp^2 and sp^2

C. sp^3 and sp^2

D. sp^2 and sp^3

Answer: D

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6. As the temperature is raised from $20^\circ C$ to $40^\circ C$ the average kinetic energy of neon atoms changes by a factor .

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

B. 2

C. $\sqrt{\frac{313}{293}}$

D. $\frac{313}{293}$

Answer: D

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7. Which one of the following aqueous solutions will exhibit highest elivation in boiling point?

A. 0.05 m glucose (non ionisable)

B. 0.01 m KNO_3 (50 % ioisable)

C. 0.015 m Urea (non ionisable)

D. 0.01 m Na_2SO_4 (75% ionizable)

Answer: A

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8. Which among the following factors is the most important in making fluorine oxidizing halogen?

A. ionization enthalpy

B. hydration enthalpy

C. electron affinity

D. bond dissociation energy

Answer: B

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9. In van der Waals' equation of the gas law the constant 'b' is a measure of .

A. intermolecular attraction

B. intermolecular repulsions

C. intermolecular collision per unit volume

D. volume occupied by the molecules

Answer: D

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10. In which of the following molecules, the substituent does not exert it's resonance effect ?

A. $C_6H_5NH_2$

B. $C_6H_5NH_3^{\oplus}$

C. $C_6H_5\_OH$

D. C_6H_5Cl

Answer: B

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11. 6.02×10^{20} molecules of urea are present in 100 mL of its solution. The concentration of urea solution is

(Avogadro constant, $N_A = 6.02 \times 10^{23} mol^{-1}$)

A. 0.02M

B. 0.001 M

C. 0.01 M

D. 0.1 M

Answer: C

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12. What mass of AgI will dissolve in 1.0 L of 1.0 M NH_3?

Neglect change in conc. Of NH_3.

[Given: $K_{sp}(AgI) = 1.5 \times 10^{-16}$),

$K_f\left[Ag(NH_3)_2^+\right] = 1.6 \times 10^7\Big]$, (At. Mass Ag=108,I=127)

A. $4.9 \times 10^{-5} g$

B. $0.0056 g$

C. $0.035 g$

D. $0.00115 g$

Answer: D

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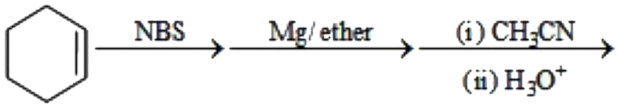
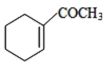
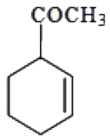
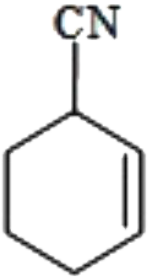
13. End product of the following sequence of reaction is



A. 

B. 

C. 

D. 

Answer: B

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14. Which of the following liquid pairs shows a positive deviation from Raoult's law?

A. water - nitric acid

B. water - hydrochloric acid

C. benzene - methanol

D. acetone - chloroform

Answer: C

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15. An ideal gas expands from $10^{-3}m^3$ to $10^{-2}m^3$ at 300 K against a constant pressure of $10^5 Nm^{-2}$. The workdone is

A. $-900kJ$

B. $-900J$

C. $270kJ$

D. $940kJ$

Answer: B

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16. In a hydrogen-oxygen fuel cell, combustion of hydrogen occurs to :

A. produce high purity water

B. generate heat

C. remove absorbed oxygen from electrode surfaces

D. create potential difference between the two electrodes

Answer: D

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17. What is the equilibrium expression for the reaction

$P_4(s) + 50_2(g) \Leftrightarrow P_4O_{10}(s)$

A. $K_C = \frac{[P_4O_{10}]}{5[P_4][O_2]}$

B. $K_C = \frac{1}{[O_2]^5}$

C. $K_C = \frac{[P_4O_{10}]}{[P_4][O_2]}$

D. $K_C = [O_2]^5$

Answer: B

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18. In a first order reaction, the concentration of the reactant, decreases from 0.8 M to 0.4 M in 15 minutes. The time taken for the concentration to change from 0.1 M to 0.025 M is :

A. 15 min

B. 75 min

C. 60 min

D. 30 min

Answer: D

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19. For the reaction , $CO(g) + Cl(g) \Leftrightarrow COCl_2(g)$ then K_p / K_c is equal to :

A. RT

B. $\sqrt{RT}$

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

D. 1.0

Answer: C

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20. The molar solubility (in mol L^{-1}) of a sparingly soluble salt MX_4 is $'s'$. The corresponding solubility product K_{sp}, $'s'$ is given in terms of K_{sp} by the relation

A. $s = \left(\frac{Ksp}{256}\right)^{1/5}$

B. $s = (128Ksp)^{1/4}$

C. $s = \left(\frac{Ksp}{128}\right)^{1/6}$

D. $s = (256Ksp)^{1/5}$

Answer: A

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21. in the following reaction

$$\text{Aldeyde} + \text{ALcohol} \xrightarrow{HCl} \text{Acetal}$$

Aldehyde	Alcohol
$HCHO$	${}^{t}BuOH$
CH_3CHO	$MeOH$

the best combination is :

A. HCHO and MeOH

B. HCHO and BuOH

C. CH_3CHO and $MeOH$

D. CH_3CHO and $BuOH$

Answer: A

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22. The standard e.m.f of a cell, involving one electron change is found to be 0.591 V at $25^{\circ}C$. The equilibrium constant of the reaction is : $\left(F = 96,500 Cmol^{-1}\right.$: R=8.314 $\left.Jk^{-1}mol^{-1}\right)$

A. 1.0×10^{30}

B. 1.0×10^{15}

C. 1.0×10^{5}

D. 1.0×10^{10}

Answer: D

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23. The enthalpies of combustion of carbon and carbon monoxide are -393.5 and -283 kJ mol^{-1} respectively. The enthaly of formation of carbon monoxide per mole is :

A. $-676.5kJ$

B. $-110.5kJ$

C. $110.5kJ$

D. $676.5kJ$

Answer: B

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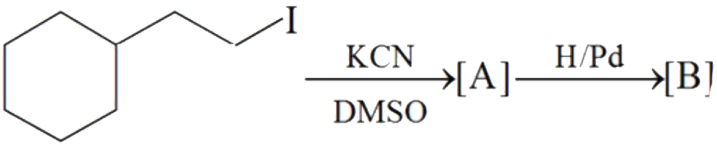
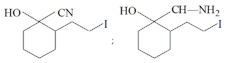
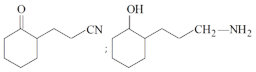
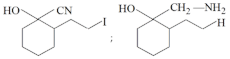
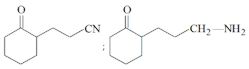
24. The major product A and B for the following reaction are respectively



A. 

B. 

C. 

D. 

Answer: B

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25. Which one of the following ores is best concentrated by froth flotation method:

A. Cassiterite

B. Galena

C. Malachite

D. Magnetite

Answer: B

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26. Beryllium and aluminium exhibit many properties which are similar . But, the two elements differ in

A. forming polymeric hydrides

B. forming covalent halides

C. exhibiting maximum covalency in compounds

D. exhibiting amphoteric nature in their oxides.

Answer: C

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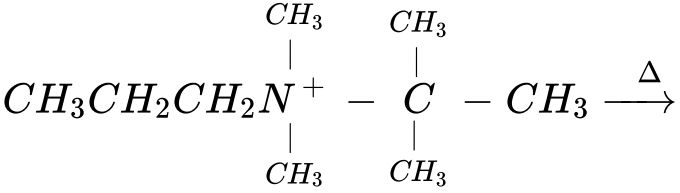
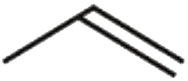
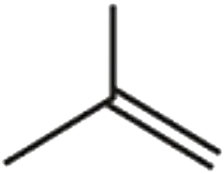
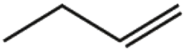
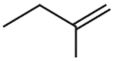
27. What is the major product alkene formed in the following elimination?



A. 

B. 

C. 

D. 

Answer: A

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28. Aluminium chloride exists as a dimer, Al_2Cl_6 in solid state as well as in solution of non-polar solvents such as benzene. When dissolved in water, it gives :

A. $Al_3O_3 + 6HCl$

B. $Al^{3+} + 3Cl^-$

C. $\left[Al(OH)_6\right]^{3-} + 3HCl$

D. $\left[Al(H_2O)_6\right]^{3+} + 3Cl^-$

Answer: D

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29. The soldiers of Napoleon army while at Alps during freezing winter suffered a serious problem with regard to the tin buttons of their uniform. White metallic tin buttons get converted to grey powder. This transformation is relate to

A. an interaction with nitrogen of the air at very low temperature

B. a change in the crystalline structure of tin

C. an interaction with water vapour contained in the humid air

D. a change in the partial pressure of oxgen in the air

.

Answer: B

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30. Excess of KI reacts with $CuSO_4$ solution and Na_2SO_3 solution is added to it. Which of the following statements in incorrect for the reaction?

A. Cu_2L_2 is formed

B. CuL_2 is formed

C. $Na_2S_2O_3$ is oxidized

D. evolved I_2 is reduced

Answer: B

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31. In the following reactions, reactants A, B and C are:

$C_2H_5NH_2 + A \rightarrow C_2H_5N = CN - C_6H_5 + H_2O$

$\text{Urea} + B \rightarrow H_2N - NHCONH_2 + NH_3$

$C_2H_5NH_2 + C \rightarrow C_2H_5Cl + H_2O + N_2$

A. $CH_3CHO, NH_2 - NH_2$ and PCl_5

B. $C_6H_5CHO, NH_2 - NH_2$ and $SOCl_2$

C. $C_6H_5CHO, NH_2 - NH_2$ and $NOCl$

D. $CH_3CHO, NH_2 - NH_2$ and PCl_3

Answer: C

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32. Which one of the following is likely to give a precipitate with $AgNO_3$ solution ?

A. $(CH_3)_3CCl$

B. $CHCl_3$

C. $CH_2 = CH - Cl$

D. CCl_4

Answer: A

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33. Among the properties (A) reducing(B) oxidising (C) complexing the set of properties shown by CN^{Θ}

ion towards metal species is .

A. A, B

B. B ,C

C. C, A

D. A,B,C

Answer: C

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34. The coordination number of a central metal atom in a complex is determined by:

A. the number of mono dentate ligands around a metal ion bonded by sigma bonds

B. the number of ligands around a metal ion boned by pi-bonds

C. the number of lgands around a metal ion bonded by sigma and pi-bonds both

D. the number of only anionic ligands bonded to the metal ion

Answer: A

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35. Identify the correct statement regarding enzymes

A. enzymes are specific biological catalysts that cannot be poisoned

B. enzymes are specific biological catalysts that posses well defined active sites.

C. enzymes are specific biological catalysts than can normally function at very high temperatures (T - 1000 K)`

D. enzymes are normally heterogeneous catalysts that are very specific in their action

Answer: B

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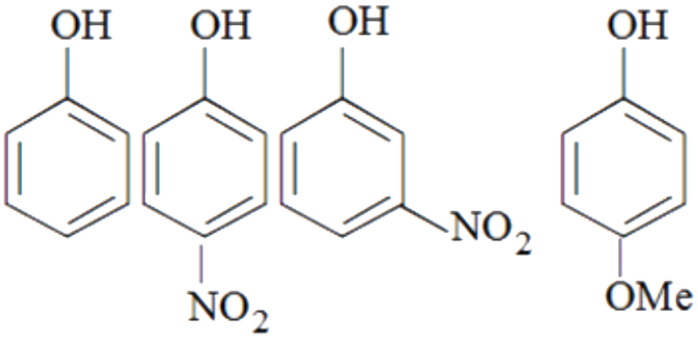
36. The increasing order of the pK_a values of the following compounds is



A B C D

A. D < A < C < B

B. B < C < D < A

C. C < B < A < D

D. B < C < A < D

Answer: D

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37. The homopolymer formed from 4-hydroxybutanoic acid is :

A. $\left[-\overset{O}{\overset{||}{C}}(CH_2)_3 - O - \right]_n$

B. $\left[-O-\overset{O}{\overset{||}{C}}(CH_2)_3 - O - \right]_n$

C. $\left[-\overset{O}{\overset{||}{C}}(CH_2)_2\overset{O}{\overset{||}{C}} - O - \right]_n$

D. $\left[-\overset{O}{\overset{||}{C}}(CH_2)_2\overset{O}{\overset{||}{C}} - \right]_n$

Answer: A

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38. Copper crystallizes in FCC with a unit cell length of 361 pm. What is the radius of copper atom?

A. 127 pm

B. 157 pm

C. 181 pm

D. 108 pm

Answer: A

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39. Which of the following pairs represents linkage isomers?

A.

$\left[Pd(PPh_3)_2(NCS)_2\right]$ and $\left[Pd(PPh_3)_2(SCN)_2\right]$

B.

$\left[Co(NH_3)_5NO_3\right]SO_4$ and $\left[Co(NH_3)_5SO_4\right]NO_3$

C. $\left[PtCl_2(NH_3)_{4_\square}Br_2\right.$ and $\left[PtBr_2(NH_3)_4\right]Cl_2$

D. $\left[Cu(NH_3)_4\right]9PtCl_4\right]$ and $\left[Pt(NH_3)_4\right]\left[CuCl_4\right]$

Answer: A

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40. The number of stereoisomers possible for a compound of the molecular formula $CH_3 - CH = CH - CH(OH) - Me$ is

A. 2

B. 4

C. 6

D. 3

Answer: B

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41. Which is the most suitable reagent for the following transformation?

$$CH_3 - CH = CH - CH_2 - \overset{OH}{\overset{|}{C}}H - CH_3 \rightarrow$$ ltrbgt

$$CH_3 - CH = CH - CH_2CO_2H$$

A. alkaline $KMnO_4$

B. $I_2 / NaOH$

C. Tollen's reagent

D. CrO_3 / CS_2

Answer: B

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42. Arrange the carbanions, $(CH_3)_3\overline{C}, \overline{C}Cl_3, (CH_3)_2\overline{C}H, C_6H_5\overline{C}H_2$, in order of their decreasing stability

A.

$$(CH_3)_2^- CH > .^- CCl_3 > C_6H_5^- CH_2 > (CH_3)_3^- C$$

B.

$$\overline{C}Cl_3 > C_6H_5^- CH_2 > (CH_3)_2^- CH > (CH_3)_3^- C$$

C. $(CH_3)_3\overline{C} > (CH_3)_2\overline{C}H > C_6H_5\overline{C}H_2 > \overline{C}Cl_3$

D. $(CH_3)_3\overline{C} > (CH_3)_2\overline{C}H > C_H\_2 > \overline{C}Cl_3$

Answer: B

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43. The alkene that exhibits geometrical isomerism is

A. 2-methyl propane

B. 2 - butene

C. 2-methyl - 2 - butene

D. propene

Answer: B

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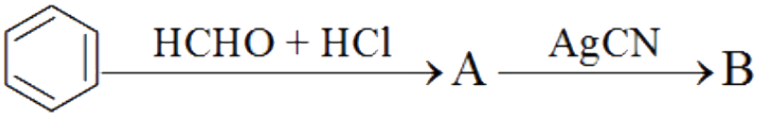
44. The compounds A and B in the following reaction are, respectively



A. A = Benzyl alcohol, B = Benzyl isocyanide

B. A = Benzyl alcohol, B = Benzyl cyanide

C. A = Benzyl chloride, B = Benzyl cyanide

D. A = Benzyl chloride, B = Benzyl isocyanide

Answer: D

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45. Noradrenaline is a/an

A. Neurotrasmitter

B. Antidepressant

C. Antihistamine

D. Antacid

Answer: A