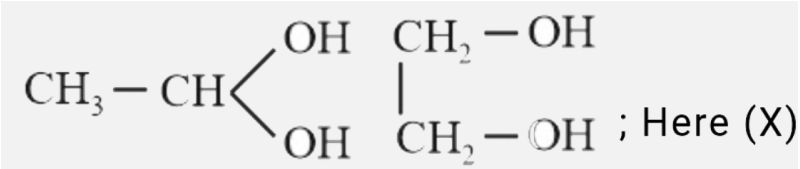
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 47

Chemistry

1.  ; Here (X) and (Y) are

X Y

A. Chain isomer

B. Position isomer

C. Metamers

D. Functional group isomer

Answer: B

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2. A first order reaction has a specific reaction rate of $10^{-2}\,\mathrm{sec}^{-1}$. How much time will it take for $20g$ of the reactant to reduce to $5g$?

A. 138.8 sec

B. 346.5 sec

C. 693.0 sec

D. 238.6 sec

Answer: A

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3. The equilibrium constant for the reaction given is $3.6 \times 10^{-7} OCl^{-}(aq) + H_2O(l) \Leftrightarrow HOCl(aq) + OH^{-}(aq)$.

What is Ka for HOCl ?

A. 2.77×10^{-8}

B. 3.6×10^{-7}

C. 6×10^{-4}

D. 2.8×10^{-6}

Answer: A

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4. In the hofmann-bromamide degradation reaction, the number of moles of NaOH and Br_2 used per mole of amine produced are

A. Four moles of NaOH and one mole of Br_2

B. one mole of NaOH and one mole of Br_2

C. Four moles of NaOH and two moles of Br_2

D. Two moles of NaOH and two moles of Br_2

Answer: A

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5. The species, having bonds angle of 120° is

A. CIF_3

B. $NCl3$

C. BCl_3

D. PH_3

Answer: C

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6. IF molality of the dilute solution is doubled the value of molal depression constant $\left(K_f\right)$ will be _____.

A. Halved

B. Tripled

C. Unchanged

D. Doubled

Answer: C

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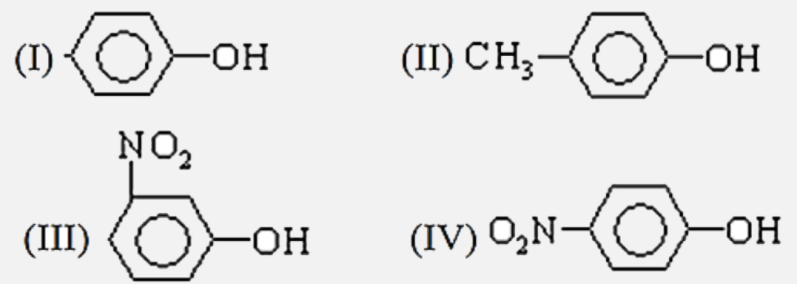
7. In the following compounds ,



the correct decreasing order of acidity is

A. $III > IV > I > II$

B. $I > IV > III > II$

C. $II > I > III > IV$

D. $IV > III > I > II$

Answer: D

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8. Which of the following statements about anhydrous aluminium chloride is correct?

A. it sublimes at $100^\circ C$ under vacuum

B. it exists as $AlCl_3$ molecules

C. it is a strong Lewis base

D. it is not easily hydrolysed

Answer: A

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9. Which of the following is dependent on temperature?

A. Molarity

B. Mole fraction

C. Weight percentage

D. Molality

Answer: A

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10. A six coordination complex of formula $CrCl_3 \cdot 6H_2O$ has green colour. A 0.1 M solution of the complex when treated with excess of $AgNO_3$ gave 28.7g of white precipitate. The formula of the complex would be:

A. $\left[Cr(H_2O)_6\right]Cl_3$

B. $\left[CrCl(H_2O)_5\right]Cl_2.\ H_2O$

C. $\left[CrCl_2(H_2O)_4\right]Cl.2H_2O$

D. $\left[Cr(H_2O)_3Cl_3\right]3H_2O$

Answer: B

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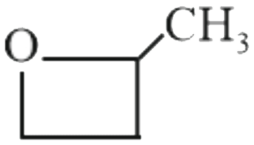
11. the major product in the following reaction is :

$$CH_3CH(Cl)CH_2CH_2OH \xrightarrow{KOH\,(aq)}$$

A. $CH_3CH = CHCH_2OH$

B. $CH_2 = CHCH_2CH_2OH$

C. 

D. $CH_3CHCH_2CH_2OH$

Answer: C

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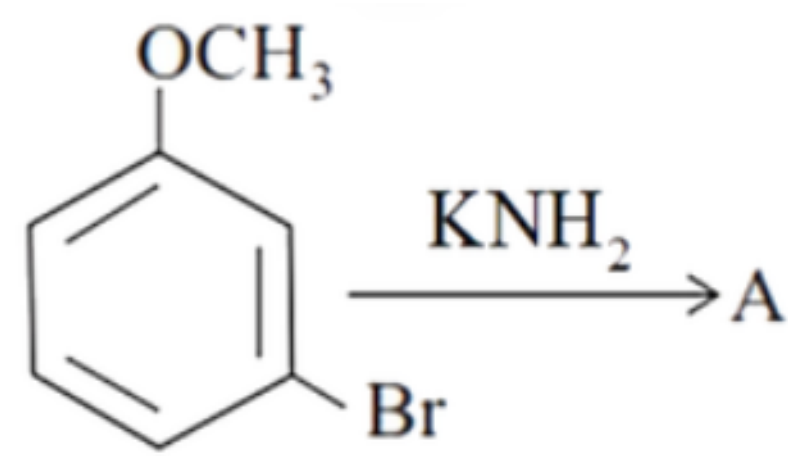
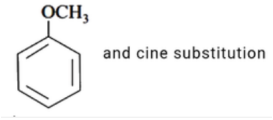
12. Identify A and predict the type of reaction



A.  and elimination addition

B.  and cine substitution

C.  and cine substitution

D.  and substitution reaction

Answer: D

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13. The density of gas A is twice that of B at the same temperature the molecular weight of gas B is twice that of A. The ratio of pressure of gas A and B will be :

A. $1:6$

B. $1:1$

C. $4:1$

D. $1:4$

Answer: C

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14. Glucose on prolonged heating with HI gives

A. 6-iodohexanal

B. n-Hexane

C. 1-Hexene

D. Hexanoic acid

Answer: B

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15. The correct statement regarding electrophile is:

A. Electrophile is a negatively charged species and it can form a bond by accepting a pair of electrons

form another electrophile

B. Electrophiles are generally neutral species and can form a bond by accepting a pair of electrons from a nucleophile

C. Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile

D. Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile

Answer: C

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16. The trans-alkenes are formed by the reduction of alkynes with

A. Sn - HCl

B. $H_2 - Pd/C, BaSO_4$

C. $NaBH_4$

D. $Na/liq.\ NH_3$

Answer: D

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17. A gas is allowed to expand in a well insulated container against a constant external pressure of $2.5atm$ from an

initial volume of $2.50L$ to a final volume of $4.50L$. The change in internal energy ΔU of the gas in joules will be:

A. $-500J$

B. $-505J$

C. $+505J$

D. 1136.25 J

Answer: B

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18. For 1 molal aqueous solution of the following compounds, which one will show the highest freezing point ?

A. $[Co(H_2O)_3Cl_3].3H_2O$

B. $[Co(H_2O)_6]Cl_3$

C. $[Co(H_2O)_5Cl]Cl_2.H_2O$

D. $[Co(H_2O)_4Cl_2]Cl.2H_2O$

Answer: A

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19. With respect to the conformers of ethane, which of the following statements is true ?

A. Bond angle changes but bond length remains same

B. Both bond angle and bond length change

C. Both bond angles and bond length remains same

D. Bond angle remains same but bond length changes

Answer: C

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20. Hydrogen peroxide oxidises $\left[Fe(CN)_6\right]^{4-}$ to $\left[Fe(CN)_6\right]^{3-}$ in acidic medium but reduces $\left[Fe(CN)_6\right]^{3-}$ to $\left[Fe(CN)_6\right]^{4-}$ in alkaline medium. The other products formed are, respectively

A. H_2O and $\left(H_2O + OH^-\right)$

B. $(H_2O + O_2)$ and H_2O

C. $(H_2O + O_2)$ and $\left(H_2O + OH^-\right)$

D. H_2O and $(H_2O + O_2)$

Answer: D

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21. How long (approximate) should water be electrolysed by passing through 100 amperes current so that the oxygen released can completely burn 27.66 g of diborane?

(Atomic weight of B = 10.8 u)

A. 1.6 hours

B. 6.4 hours

C. 0.8 hours

D. 3.2 hours

Answer: D

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22. Correct increasing order for the wavelengths of absorption in the visible region by the complexes of Co^{3+} is:

A. $\left[Co(H_2O)_6\right]^{3+}, \left[Co(en)_3\right]^{3+}, \left[Co(NH_3)_6\right]^{3+}$

B. $\left[Co(H_2O)_6\right]^{3+}, \left[Co(NH_3)_6\right]^{3+}, \left[Co(en)_3\right]^{3+}$

C. $\left[Co(NH_3)_6\right]^{3+}, \left[Co(en)_3\right]^{3+}, \left[Co(H_2O)_6\right]^{3+}$

D. $\left[Co(en)_3\right]^{3+}, \left[Co(NH_3)_6\right]^{3+}, \left[Co(H_2O)_6\right]^{3+}$

Answer: D

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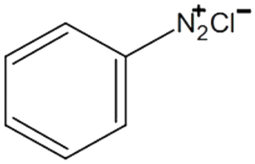
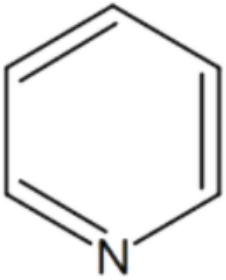
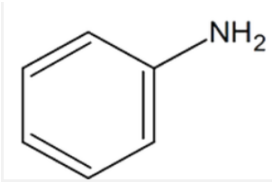
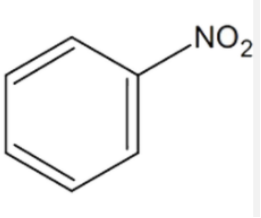
23. Which of the following compounds will be suitable for Kjeldah1's method for nitrogen estimation?

A. 

B. 

C. 

D. 

Answer: C

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24. According to molecular orbital theory, which of the following will not be a viable molecule?

A. H_2^{2-}

B. He_2^{2+}

C. He_2^{+}

D. He_2^{-}

Answer: A

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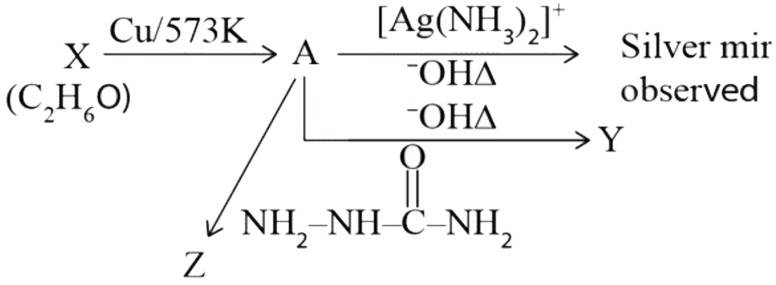
25. Consider the reactions



Identify A , X , Y and Z

A. A - Methoxymethane , X - Ethanol , Y Ethanoic acid , Z - Semicarbazone

B. A - Ethanal , X - Ethanol , Y - But -2-enal , Z - Semicarbazone

C. A - Ethanol , X - Acetaldehyde , Y - Butanone, Z - Hydrazone

D. A - Methoxymethane , X - Ethanoic acid , Y - Acetate ion , Z - Hydrazine

Answer: B

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26. Which type of defect has the presence of cations in the interstitial sites ?

A. Metal deficiency defect

B. Schottky defect

C. Vacancy defect

D. Frenkel defect

Answer: D

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27. An aqueous solution contains $0.10MH_2S$ and 0.20 M HCl. If the equilibrium constants for the formation of HS^- from H_2S is 1.0×10^{-7} and that of S^{2-} from HS^- ions is 1.2×10^{-13} then the concentration of S^{2-} ions in aqueous solution is

A. 5×10^{-19}

B. 5×10^{-8}

C. 3×10^{-20}

D. 6×10^{-21}

Answer: C

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28. Which method of purification is represented by the following equations

$$Ti + 2I_2 \xrightarrow{523K} TiI_4 \xrightarrow{1700K} Ti + 2I_2$$

A. Cupellation

B. Poling

C. Van Arkel method

D. Zone refining

Answer: C

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29. A 20 litre container at $400K$ contains $CO_2(g)$ at pressure $0.4atm$ and an excess of SrO (neglect the volume of solid SrO). The volume of the container, when pressure of CO_2 attains its maximum value, will be:

(Given that: $SrCO_3(s) \Leftrightarrow SrO(s) + CO_2(g) K_p = 1.6atm$)

A. 10 litre

B. 4 litre

C. 2 litre

D. 5 litre

Answer: D

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30. A fire work gave green light. It probably contained a salt of

A. Ca

B. K

C. Ba

D. Mg

Answer: A

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31. About H_2SO_4, which of the following statements is incorrect ?

A. It acts as a reducing agent

B. It acts as an oxidizing agent

C. It acts as dehydrating agent

D. It is highly viscous

Answer: A

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32. The property of halogen is not correctly matched

A. $HF > HCl > HBr > Hl$ ..... acidic strength

B. $Hl > HBr > HCl > HF$ ..... Reducing strength

C. $Hl > HBr > HCl > HF$ ..... bond length

D. $HF > HCl > HBr > Hl$ ..... thermal stability

Answer: A

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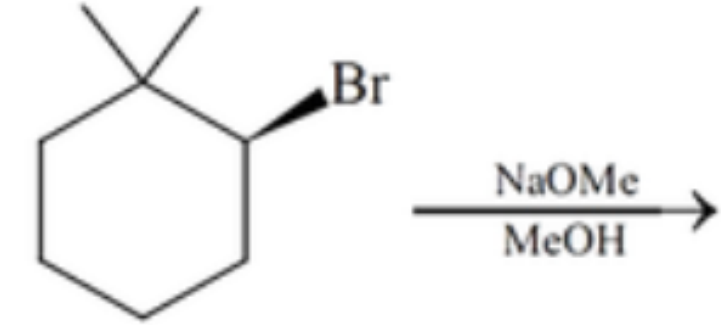
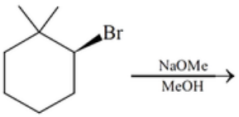
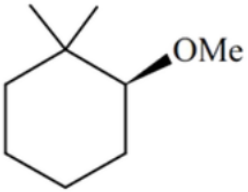
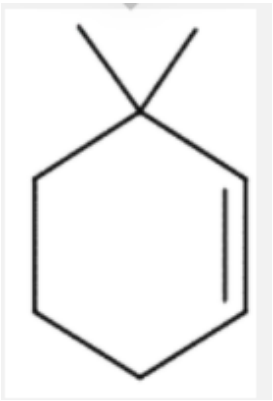
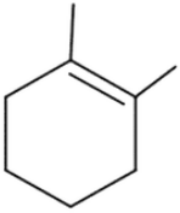
33. The major product of the following reaction is



A. 

B. 

C. 

D. 

Answer: C

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34. The compound that does not produce nitrogen gas by the thermal decomposition is

A. $(NH_4)_2SO_4$

B. $Ba(N_3)_2$

C. $(NH_4)_2Cr_2O_7$

D. NH_4NO_2

Answer: A

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35. A stream of electrons from a heated filament was passed between two charged plates kept at a potential

difference V esu. If c and m are charge and mass of an electron repectively, then the value of h/λ (where λ is wavelength associated with electron wave) is given by :

A. $\sqrt{2meV}$

B. meV

C. 2meV

D. $\sqrt{meV}$

Answer: A

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36. For a linear plot of log (x/m) versus log p in a Freundlich adsorption isotherm, which of the following statements is

correct ? (K and n are constants)

A. log (1/n) appears as the intercept

B. Both k and 1/n appear in the slope term

C. 1/n appears as the intercept

D. Only 1/n appears as the slope

Answer: D

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37. Which of the following statements about low density polythene is false ?

A. It is used in the manufacture of buckets, dust - bins etc.

B. Its synthesis requires high pressure

C. It is a poor conductor of electricity

D. Its synthesis requires dioxygen or a peroxide initiator as a catalyst.

Answer: A

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38. Thiol group is present in :

A. Methionine

B. Cytosine

C. Glycine

D. Cysteine

Answer: D

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39. The oxidation states of

Cr in $\left[Cr(H_2O)_6\right]Cl_3.$, $\left[Cr(C_6H_6)_2\right]$ and

$K_2\left[Cr(CN)_2(O_2)(NH_3)\right]$ respectively are

A. $+3, 0$ and $+4$

B. $+3,\ +4$ and $+6$

C. $+3,\ +2$ and $+4$

D. $+3, 0$ and $+6$

Answer: D

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40. The correct statement among the following is

A. Sodium dodecylbenzensulphonate is used in toothpaste is a cationic detergent

B. Sodium lauryl sulphate forms an insoluble scum with hard water

C. Cetyltrimethylammonium bromide is a popular cationic detergent used in hair conditioner

D. Non - ionic detergents are formed when polythene glycol reacts with adipic acid

Answer: C

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41. The reason for greater range of oxidation state in actinoids is attributed to:

A. Actinoid contraction

B. 5f, 6d ad 7s levels having comparable energies

C. 4f and 5d levels being close in energies

D. The radioactive nature of actinoids

Answer: B

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42. Which of the following is not a green house gas ?

A. CO_2, CH_4, N_2O, O_3

B. O_3, NO_2, SO_2, Cl_2

C. CH_4, O_3, N_2, SO_2

D. O_3, N_2, CO_2, NO_2

Answer: A

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43. One litre sea water (d = 1.03g/cm^3) contains 10.3 mg O_2 gas. Determine concentration of O_2 in ppm.

A. 8

B. 12

C. 15

D. 10

Answer: D

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44. Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field ?

A. K

B. Rb

C. Li

D. Na

Answer: C

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45. The heat of formation of $NH_3(g)$ is -46 kJ mol^{-1}. The ΔH (in kJ mol^{-1}) of the reaction, $2NH_3(g) \rightarrow N_2(g) + 3H_2(g)$ is

A. 46

B. -46

C. 92

D. -92

Answer: C

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