CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 87

Chemistry

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1. $3d^4$ configuration may have the exchange of s

    A. four electrons
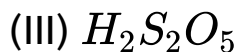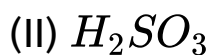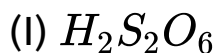
    B. three electrons

C. sixteen electrons

D. six electrons

Answer: D

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2. Identify the correct order of decreasing number of π bonds in the structures of the following molecules

(I) $H_2S_2O_6$

(II) H_2SO_3

(III) $H_2S_2O_5$

A. $I > II > III$

B. $II > III > I$

C. $I > III > II$
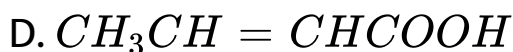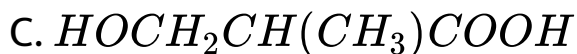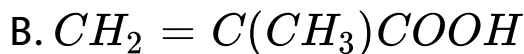
D. $II > I > III$

Answer: C

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3. Identify the final product (Z) in the following

sequence of reactions :

$$Me_2C = O + HCN \rightarrow (X) \xrightarrow{H_3O^+} (Y) \xrightarrow{H_2SO_4}$$

A. $(CH_3)_2C(OH)COOH$

B. $CH_2 = C(CH_3)COOH$

C. $HOCH_2CH(CH_3)COOH$

D. $CH_3CH = CHCOOH$
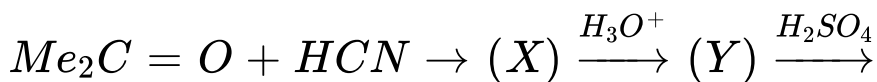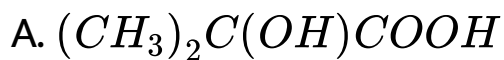
Answer: B

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4. 0.44 g of colourless oxide of nitrogen occupies

224 ml at STP. The molecular formula is

A. NO

B. NO_2

C. N_2O

D. N_2O_5

Answer: C

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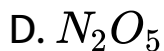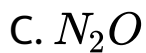
5. Which liberates ammonia when treated with

A. Li_3N

B. Mg_3N_2

C. $CaCN_2$
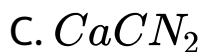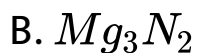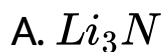
D. All of these

Answer: D

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6. Arrange pH of the given compounds in decreasing order:

(1) Phenol

(2) Ethyl alcohol

(3) Formic acid

(4). Benzoic acid

A. $1 > 2 > 3 > 4$

B. $2 > 1 > 4 > 3$

C. $3 > 2 > 4 > 1$

D. $4 > 3 > 1 > 2$

Answer: B

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7. How many moles of $KMnO_4$ are needed to oxidise a mixture of 1 mole of each $FeSO_4 \& FeC_2O_4$ in acidic medium :

A. $4/5$

B. $5/4$

C. $3/4$

D. $5/3$

Answer: A

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8. Only two isomeric monochloro derivatives are possible for

A. n - butane

B. 2,3 - dimethylpentane

C. 2 - methylpropane

D. both A and C

Answer: D

9. From B_2H_6, all the following can be prepared

except

A. H_3BO_3

B. $B_2(CH_3)_6$

C. $NaBH_4$
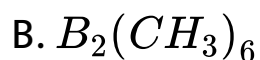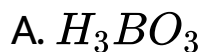
D. B_2O_3

Answer: B

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10. An ionic compound AB has ZnS type of structure if the radius A^+ is 22.5 pm , then the ideal radius of B is

A. 100 pm

B. 200 pm

C. 150 pm

D. 95 pm

Answer: A

11. When a small amount of HCl is added to an aqueous solution of $BiCl_3$, a white precipitate is formed. This is due to formation of

A. $Bi(OH)_3$

B. Bi_2O_3

C. $BiOCl$
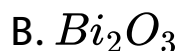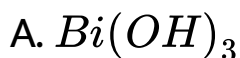
D. None of the above

Answer: C

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12. Alkyl iodides reacts with $NaCN$ to form alkyl cyanides plus a little amount of alkyl isocyanides. The reason for the formation two types of products is-

A. Ionic character of NaCN

B. Nucleophilic character of cyanide ion

C. Ambident character of cyanide ion

D. Electrophilic character of cyanide

Answer: C

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13. Consider the following dioxide of group 14

1. CO_2

2. SiO_2

3. GeO_2

4. SnO_2

5. PbO_2

The basicity of the dioxide alters in the order

A. $CO_2 > SiO_2 > GeO_2 > SnO_2 > PbO_2$

B. $CO_2 < SiO_2 < GeO_2 < SnO_2 < PbO_2$

C. $CO_2 < SiO_2 < GeO_2 < PbO_2 < SnO_2$

D. $CO_2 < SiO_2 < SnO_2 < PbO_2 < GeO_2$
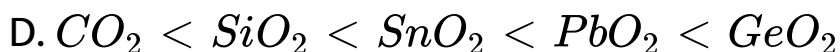
Answer: B

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14. At a certain temperature the equilibrium constant K_C is 0.25 for the reaction $A(g) + B(g) \Leftrightarrow C(g) + D(g)$ If we take 1 mole of each of four gases in a 10 litre container , what woluld be the equilibrium concentration of A(g) ?

A. 0.331 M

B. 0.033M

C. 0.133M

D. 1.33M

Answer: C

15. When strong base (NaOH) is added to the weak (acid , CH_3COOH) , then dissociation of acetic acid increase, this effect is known as

    A. common ion effect

    B. reverse ion effect

    C. saltation effect

    D. solubility effect

Answer: B

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16. In the given reaction

$$CH_3 - CH_2 - Br \xrightarrow{\text{Moist } Ag_2O} [X]$$ [X] will be

A. Ethanol

B. Diethyl ether

C. Propane

D. Propyne

Answer: A
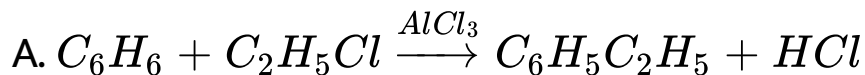
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17. $KCl. MgCl_2. 6H_2O$ is a

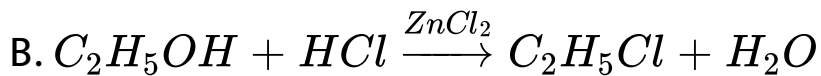A. mixed salt

B. double salt
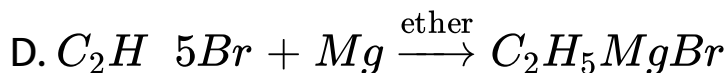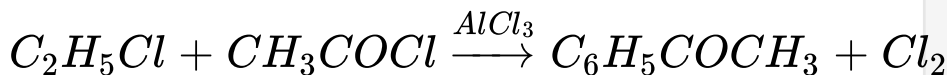
C. basic salt

D. complex salt

Answer: B

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18. Which equation represents an example of Friedel - Crafts reaction?

A. $C_6H_6 + C_2H_5Cl \xrightarrow{AlCl_3} C_6H_5C_2H_5 + HCl$

B. $C_2H_5OH + HCl \xrightarrow{ZnCl_2} C_2H_5Cl + H_2O$

C.

$$C_2H_5Cl + CH_3COCl \xrightarrow{AlCl_3} C_6H_5COCH_3 + Cl_2$$

D. $C_2H\_5Br + Mg \xrightarrow{\text{ether}} C_2H_5MgBr$

Answer: A

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19. If a gas absorbs $200J$ of heat and expands by $500cm^3$ against a constant pressure of $2 \times 10^5 Nm^{-2}$, then the change in internal energy is
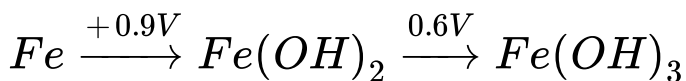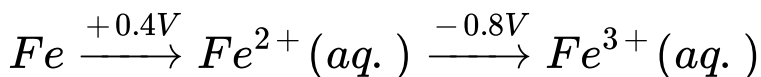
A. $-200J$

B. $-100J$

C. $+100J$

D. $+200J$

Answer: C

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20. Given the standard oxidation potentials

$$Fe \xrightarrow{+0.4V} Fe^{2+}(aq.) \xrightarrow{-0.8V} Fe^{3+}(aq.)$$

$$Fe \xrightarrow{+0.9V} Fe(OH)_2 \xrightarrow{0.6V} Fe(OH)_3$$

It is easier to oxidise `Fe^(2+) " to " Fe^(3+)in

A. acid medium

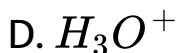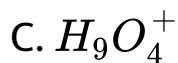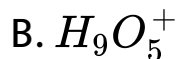B. alkaline medium

C. neutral medium

D. both in acidic and alkaline mediums

Answer: B

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21. According to recent views which is the correct representation of hydrated proton in aqueous solution ?

A. H^+

B. $H_9O_5^+$

C. $H_9O_4^+$

D. H_3O^+

Answer: C

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22. A proton and an alpha - particle are accelerated through same potential difference. Then, the ratio of de-Broglie wavelength of proton and alpha-particle is

A. $2:1$

B. $1:1$

C. $1:2$

D. $2\sqrt{2}:1$
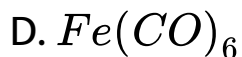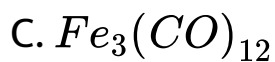
Answer: D

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23. Finely divided iron combines with CO to give

A. $Fe(CO)_5$

B. $Fe_2(CO)_9$

C. $Fe_3(CO)_{12}$

D. $Fe(CO)_6$

Answer: A

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24. The vapour pressure of pure benzene at $25°C$ is

640 mm Hg and that of the solute A in benzene is

630 mm of Hg. The molality of solution of

A. 0.2 m

B. 0.4 m

C. 0.5 m

D. 0.1 m

Answer: A

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25. Germinal dihalides on hydrolysis give

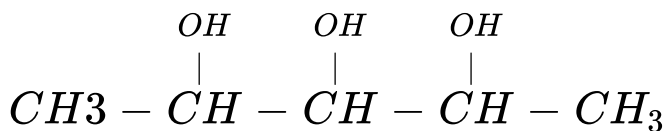A. Vininal diol

B. Geminal diol

C. Carbonly compound

D. Carboxylic acid

Answer: C

26. The number of meso form of the given compound (A) is

$$CH3 - \underset{\underset{OH}{|}}{CH} - \underset{\underset{OH}{|}}{CH} - \underset{\underset{OH}{|}}{CH} - CH_3$$

A. 2

B. 3

C. 4
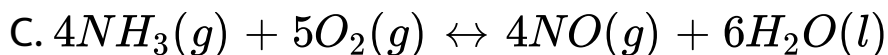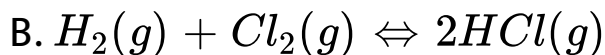
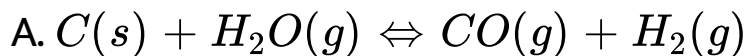D. 8

Answer: A

27. In which reaction will an increase in the volume of the container favor the formation of products?

A. $C(s) + H_2O(g) \Leftrightarrow CO(g) + H_2(g)$

B. $H_2(g) + Cl_2(g) \Leftrightarrow 2HCl(g)$

C. $4NH_3(g) + 5O_2(g) \leftrightarrow 4NO(g) + 6H_2O(l)$

D. $3O_2(g) \Leftrightarrow 2O_3(g)$
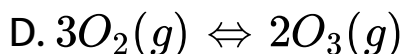
Answer: A

28. Which among the following is a false statement ?

A. SO_3 is obtained by the catalytic oxidation of SO_2
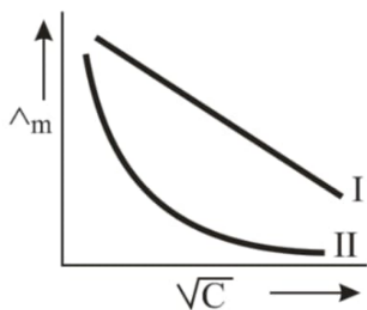
B. SO_3 has trigonal planar geometry is gaseous state

C. SO_3 in gaseous state has all S - O bonds equivalent

D. SO_3 gas shows more solubility in water than

in H_2SO_4

Answer: D

29.

Above plot represents the variation of molar

conductance against $\sqrt{C}$ (where C = molar

concentration of the electrolyte) . Select the correct option among following .

A. Both I and II are for strong electrolyte

B. Both I and II are for weak electrolyte

C. I is for strong electroyte and II for weak electrolyte

D. I is for weak electrolyte and II for strong electrolyte

Answer: C

30. What is the minimum pH required to prevent the precipitation of ZnS in a solution which is 0.01 M $ZnCl_2$ and saturated with 0.1 M H_2S ?

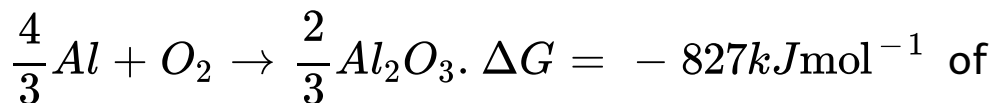K_{sp} of $(ZnS) = 10^{-21}$, $K_{a_1} \times K_{a_2}(H_2S) = 10^{-20}$

A. 4

B. 3

C. 2

D. 1

Answer: D

31. On the bassis of the information available from the reaction

$$\frac{4}{3}Al + O_2 \rightarrow \frac{2}{3}Al_2O_3. \ \Delta G = -827kJmol^{-1} \text{ of}$$

O_2 the minimum emf required to carry out an electorlysis of Al_2O_3 is $\left(F = 96500Cmol^{-1}\right)$

A. 2.14 V

B. 4.28

C. 6.42 V

D. 8.56 V

Answer: A

32. Which alpha $\alpha -$ acid does not contain primary amino group ?

    A. Proline

    B. Threonine

    C. Lysine

    D. All of these

Answer: A

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33. 1 mole of AgI / Ag^+ sol is coagulated by

A. 1 mol of Kl

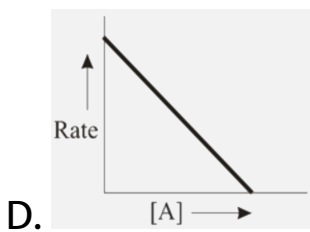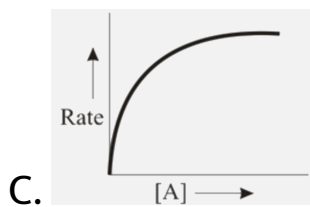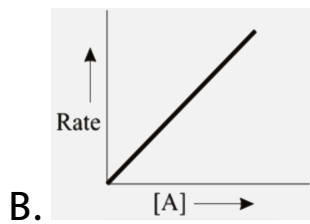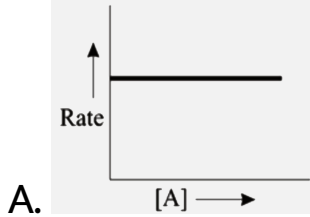B. 500 mL of 1 M K_2SO_4

C. 300 mL of $1MNa_3PO_4$

D. 1 mol of Agl

Answer: A

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34. Which of the following graphs represents a first

order reaction ?

A.

B.

C.

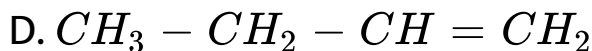D.

Answer: B

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35. In the given reaction

$$CH_3 - \overset{\overset{CH_3}{\mid}}{\underset{\underset{CH_3}{\mid}}{C}} - CH_2 - Br \xrightarrow{\Delta} [X]$$

[X] will be

A. $CH_3 - \underset{\underset{CH_3}{\mid}}{CH} - CH = CH_2$

B. $CH_3 - \underset{\underset{CH_3}{\mid}}{C} = CH - CH_3$

C. $CH_3 - CH = CH - CH_3$

D. $CH_3 - CH_2 - CH = CH_2$
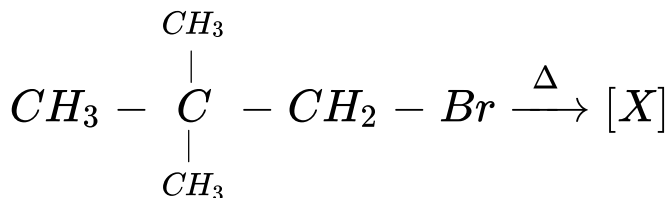
Answer: B

36. In the given reaction

[X] will be
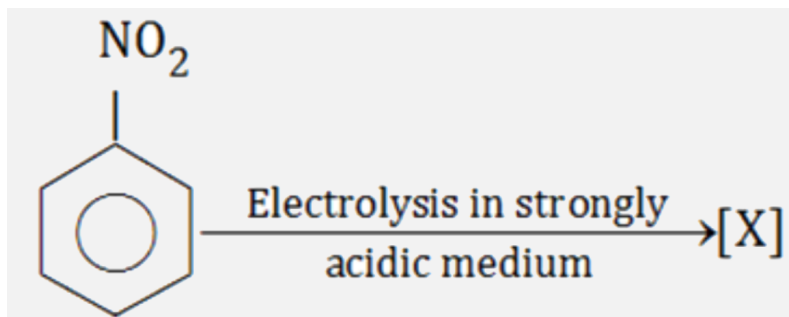
A. $C_6H_5NH_2$

B. C_6H_5NHOH

C. p- amino phenol

D. Hydrazobenzene

Answer: C

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37. Which of the following chemical regent can provide distinctin between the two ionsisation isomers of the formula $Co(NH_3)_5 BrSO_4$?

A. $BaCl_2$ solution

B. dil. HCl

C. dil. H_2SO_4

D. Fenton's reagents

Answer: A

38. The final product (X) in the following reaction is

NHCOCH₃

Acetanilide

$$\xrightarrow{(i)\,conc.\,H_2SO_4}\xrightarrow{conc.\,HNO_3}\xrightarrow{\Delta}\xrightarrow{H_2O\,/\,OH^-}(X)$$
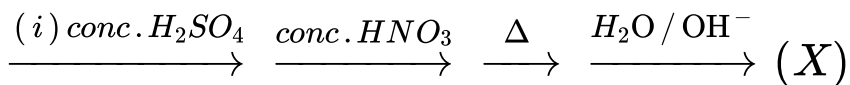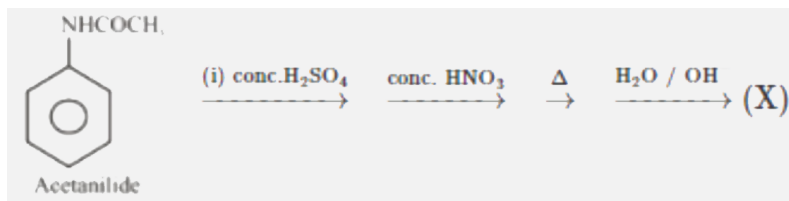
A. 2 - Nitroaniline

B. 3 - Nitroaniline

C. 4 - Nitroaniline

D. Sulphanilic acid

Answer: A

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39. Which of the following represents correctly the variation of degree of adsorption against temperature for physical adsorption ?

A.

B.

C.

D.

Answer: B

40. Which of the following oxo acids of chlorine is the best oxidisinig agent?

A. HClO

B. $HClO_2$

C. $HClO_3$

D. $HClO_4$

Answer: A

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41. Most hazardous metal pollutant of automobile exhausts is :

A. Mercury

B. Tin

C. Cadmium

D. Lead

Answer: D

42. Which the following is true about the size of tetrahedral and octahedral voids ?

A. Size of tetrahedral void = Size of octahedral void

B. Size of tetrahedral void $>$ Size of octahedral void

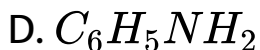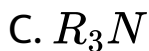C. Size of tetrahedral void $<$ Size of octahedral void

D. Size of voids depends on the size of atoms present in packing

Answer: C

43. Which one of the following gives imine formation with carbonyl compounds

A. $C_6H_5 - NH - C_6H_5$

B. NH_4Cl

C. R_3N

D. $C_6H_5NH_2$

Answer: D

44. Which one of the following is strongest acid

    A. 2 - chloropentanoic acid

    B. 3 - chloropentanoic acid

    C. 5 - chloropentanoic acid

    D. 4 - chloropentanoic acid

Answer: A

45. Which of the following is correct for zero and first order reactions respectively, where 'a' is initial concentration of the reactant ?

A. $t_{1/2} \propto a, t_{1/2} \propto \dfrac{1}{a^2}$

B. $t_{1/2} \propto a, t_{1/2} \propto \dfrac{1}{a}$

C. $t_{1/2} \propto a, t_{1/2} \propto a^0$

D. $t_{1/2} \propto a^0, t_{1/2} \propto a$

Answer: C

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