CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 96

Chemistry

1. In the following reaction:

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$, if the atomic

weight of iron is 56, then its equivalent weight will be

A. 42

B. 21

C. 63

D. 84

Answer: B

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2. On adding excess of $AgNO_3$ solution into 0.01mole complex compound $PtBr_4.xNH_3$, 0.03 moles yellow precipitate was obtained , the value of 'x' is

A. 2

B. 3

C. 4

D. 5

Answer: D

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3. In the following reaction, $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$ the rate of formation of SO3 is 100g/min. rate of disappearance of O2

A. $50 \ \text{gmin}^{-1}$

B. $20 \ \text{gmin}^{-1}$

C. $100 \ \text{gmin}^{-1}$

D. $200 \ \text{gmin}^{-1}$

Answer: A

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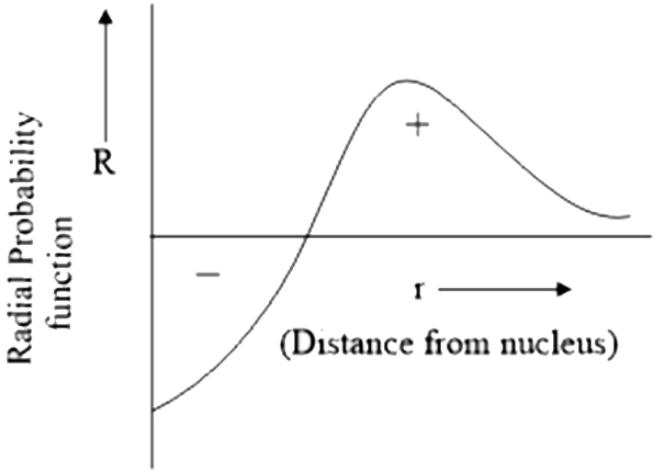

4.

Number of nodes in above plot is

A. 1

B. 2

C. 3

D. 4

Answer: A

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5. Consider the following transformation :

$$2CuX_2 \xrightarrow{\text{Room temperature}} 2CuX + X_2(\uparrow)$$

Then X^- can be:

A. F^-, Br^-

B. Cl^-, Br^-

C. CN^-, I^-

D. Cl^-, F^-

Answer: C

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6. Which of the following acids will give maximum yield of alkyl chloride in Huns diecker reaction

A. $CH_3 - CH_2 - CH_2 - COOH$

B. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - COOH$

C. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - COOH$

D. $C_6H_5 - \underset{\underset{CH_3}{|}}{CH} - COOH$

Answer: A

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7. For which process will ΔH and ΔG° be expected to be most similar?

A.

$$2Al(s) + Fe_2O_3(s) \rightarrow 2Fe(s) + Al_2O_3(s)$$

B.

$$2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq.) + H_2(g)$$

C. $2NO_2(g) \rightarrow N_2O_4(g)$

D. $2H_2(g) + O_2(g) \rightarrow 2H_2O(g)$

Answer: A

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8. The hybrid state and oxidation state of S in SF_4 are respectively

A. $sp^3, +4$

B. $sp^2, +6$

C. $sp^3d, +4$

D. $dsp^3, +6$

Answer: C

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9. Mixture of volatile components A and B has a total vapour pressure (in torr)p=$254 - 119x_A$is where$x_A$mole fraction of A in mixture .HenceP_A° and P_B° are(in torr)

A. $254, 119$

B. $119, 254$

C. $135, 254$

D. 154, 119

Answer: C

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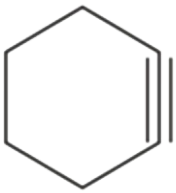
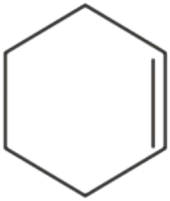
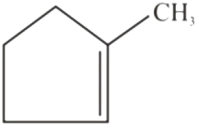
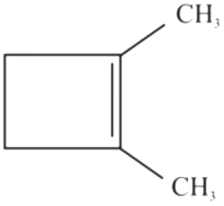
10. Compound A on oxidation with $OsO_4 / NaHSO_3$ following by reaction with HIO_4 gives hexane 1,6 - di al .The structure of compound A can be given as

A. 

B. 

C. 

D. 

Answer: B

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11. Consider the following sequence of reaction:

$$Na + NH_3(g) \rightarrow [X] \xrightarrow{N_2O} [Y] \xrightarrow{Heat} \underset{\text{Gas pure}}{[Z]}$$

Identify [Z] gas:

A. N_2

B. NH_3

C. O_2

D. None of these

Answer: A

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12. An electron of a velocity 'x' is found to have a certain wavelength. The velocity to be possessed by the neutron to have half the de Broglie wavelength possessed by electron is:

A. x

B. $\frac{x}{1840}$

C. $1840x$

D. None

Answer: B

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13. Hydrogen molecules are

A. Monoatomic and form X_2^{2-} types ions

B. Diatomic and from X_2^- type ions

C. Diatomic and from X^- as well as X^+ type ions

D. Monoatomic and form X^- type ions

Answer: C

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14. In the given reaction

$$C_6H_5 - \underset{\underset{O}{||}}{C} - CH_3 \xrightarrow{NH_2OH\,/\,H^{\oplus}} [X] \xrightarrow{Na\,/\,C_2H_5OH} [Y]$$

[Y] will be

A. $C_6H_5 - \underset{\underset{CH_3}{|}}{CH} - NH_2$

B. $C_6H_5 - \underset{\underset{CH_3}{|}}{CH} - NH - CH_3$

C. $C_6H_5 - \overset{\overset{O}{||}}{C} - NH - CH_3$

D. $CH_3 - \overset{\overset{O}{||}}{C} - NH - C_6H_5$

Answer: A

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15. Solubility of Zirconium phosphate $Zr_3(PO_4)_4$ is 's' moles per litre. Solubility product of K_{sp} may be given as

A. $6912s^7$

B. $108s^7$

C. $27s^4$

D. $6812s^7$

Answer: A

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16. An element (atomic mass $= 100g/mol$) having bcc structure has unit cell edge 400 pm .Them density of the element is

A. $10.376g/cm^3$

B. $5.188g/cm^3$

C. $7.289g/cm^3$

D. $2.144g/cm^3$

Answer: B

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17. Which one of the following compounds is least reactive with water?

A. $CH_3 - \overset{\overset{O}{||}}{C} - Cl$

B. $C_6H_5 - \overset{\overset{O}{||}}{C} - NH_2$

C. $CH_3 - \overset{\overset{O}{||}}{C} - NH_2$

D. $C_6H_5 - \overset{\overset{O}{||}}{C} - Cl$

Answer: B

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18. In $\left[Cr(O_2)(NH_3)_4H_2O\right]Cl_2$ oxidation number of Cr is +3 then oxygen will be the form:

A. dioxo

B. peroxo

C. superoxo

D. oxo

Answer: C

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19. In which of the following solution the depression in freezing point is lowest ?

A. 0.2 M urea and 0.2 M glucose

B. $0.1MAl_2(SO_4)_3$ and $0.1MNa_2SO_4$

C. $0.1MKNO_3$ and $0.2MBa(NO_3)_2$

D. $0.1MCa(NO_3)_2$ and $0.1MBa(NO_3)_2$

Answer: A

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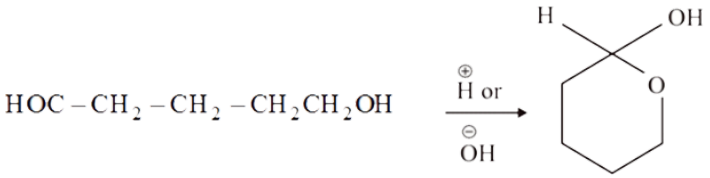
20. Consider the following

$$HOC - CH_2 - CH_2 - CH_2CH_2OH \xrightarrow[\ominus OH]{\oplus H \text{ or}}$$



The above reaction is an example of

A. Intermolecular hemiacetal formation

B. Intranmolecular hemiacetal formation

C. Intramolecular acetal formation

D. Intermolecular acetal formation

Answer: B

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21. What is the sign of ΔG° and the value of K an electrochemical cell for which $E^{\circ}_{\text{cell}} = 0.80V$?

A. $\Delta G = -ve$

$k > 1$

B. $\Delta G = +ve$

$k > 1$

C. $\Delta G = +ve$

$k < 1$

D. $\Delta G = -ve$

$k < 1$

Answer: A

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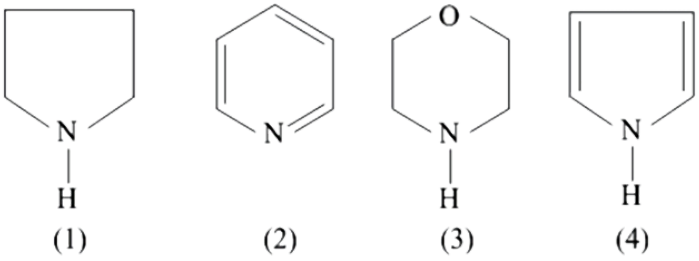
22. Consider the following compounds



Order of basicity of these compounds in decreasing .....is

A. $4 > 1 > 2 > 3$

B. $1 > 3 > 4 > 2$

C. $2 > 3 > 4 > 1$

D. $1 > 3 > 2 > 4$

Answer: D

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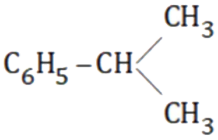
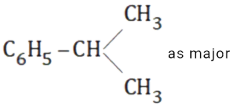
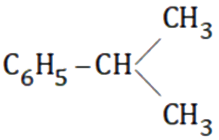
23. The products of the reaction will be

$$C_6H_6 + CH_3 - CH_2 - CH_2 - Br \xrightarrow{\text{Anhy.AlBr}_3}$$

A. $C_6H_5 - CH_2 - CH_2 - CH_3$

B. 

C.  as major product and $C_6H_5 - CH_2 - CH_2 - CH_3$ as minor product.

D. 1 : 1 mixture of $C_6H_5 - CH_2 - CH_2 - CH_3$ and 

Answer: C

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24. Arrange the following as indicated.

CO_2, N_2O_5, SiO_2 and SO_3 in the order of increasing acidic character.

A. $II < I < IV < III$

B. $I < II < III < IV$

C. $III < II < IV < I$

D. $IV < III < II < I$

Answer: A

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25. An open vessel at $27^\circ C$ is heated until $3/5$ of the air in it is expelled. Assuming that the volume of the vessel remains constant, find the temperature to which the vessel has been heated.

A. 1500 K

B. 75 K

C. 750 K

D. None

Answer: C

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26. In the given reaction

$$C_6H_5 - CH = CH - CH_3 + HCl \rightarrow [X]$$ [X]

will be

A. $C_6H_5 - \overset{Cl}{\overset{|}{C}}H - CH_2 - CH_3$

B. $C_6H_5 - CH_2 - \overset{Cl}{\overset{|}{C}}H - CH_3$

C. $Cl - C_6H_4 - CH = CH - CH_3$

D. $C_6H_5 - CH = CH - CH_2Cl$

Answer: A

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27. The resistance of 0.01 N solution at $25^{\circ}C$ is 200 ohm. Cell constant of the conductivity cell is unity. Calculate the equivalent conductance of the solution.

A. $500 \text{ohm}^{-1} cm^2 eq^{-1}$

B. $5 \text{ohm}^{-1} cm^2 eq^{-1}$

C. $250 \text{ohm}^{-1} cm^2 eq^{-1}$

D. None

Answer: A

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28. When 0.01 moles of NaOH are added to 1 litre of a buffer solution , its pH changes from 4.745 to 4.832. The buffer capacity is

A. 0.0115

B. 11.5

C. 0.115

D. None

Answer: C

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29. Which of the following compounds on basic hydrolysis will gives formaldehyde ?

A. $CHCl_3$

B. $CH_3 - CHCl_3$

C. CH_2Cl_2

D. CCl_4

Answer: C

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30. For a reaction $A + 2B \rightarrow 2C$, the following data were obtained . Initial concentration

	$[A]$	$[B]$	Rate$\left(moll^{-1}\ \overset{-1}{\min}\right)$
$i.$	1.0	1.0	0.15
ii	2.0	1.0	0.30
$iii.$	3.0	1.0	0.45
$iv.$	1.0	2.0	0.15
$v.$	1.0	3.0	0.15

The rate law for this reaction

A. $R = k[A][B]^0$

B. $R = k[A][B]^2$

C. $R = k[A][B]$

D. $R = k[A]^2[B]$

Answer: A

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31. Which of the following is a true peroxide ?

A. PbO_2

B. CO_2

C. SO_2

D. BaO_2

Answer: D

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32. Which among the following compounds will show geometrical

A. $CH_3 - CH = CH_2$

B. $CH_3 - \underset{\underset{CH_3}{|}}{C} - CH_2$

C. $CH_3 - \underset{\underset{CH_3}{|}}{C} - CHD$

D. $CH_3 - CH = CHD$

Answer: D

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33. 0.365 g of an orgainc compound containing nitrogen gave 56 ml nitrogen at S.T.P. The percentage nitrogen in the given compound is

A. 19.18

B. 38.36

C. 9.18

D. 29.18

Answer: A

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34. Water soluble salt (x) when heated decomposes into three products A, B and C. Here B and C are two different paramagnetic gases while A is yellow in hot condition Here the salt (x) is

A. $Hg(NO_3)_2$

B. FeC_2O_4

C. $ZnSO_4$

D. $Pb(NO_3)_2$

Answer: D

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35. The addition of HCl will not supress the ionisation of

A. CH_3COOH

B. C_6H_5COOH

C. H_2S

D. H_2SO_4

Answer: D

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36. Whipped cream is an example of

A. Dispersed phase $\rightarrow$ Liquid Dispersion medium $\rightarrow$ gas

B. Dispersed phase $\rightarrow$ Gas Dispersion medium $\rightarrow$ liquid

C. Dispersed phase $\rightarrow$ Liquid Dispersion medium $\rightarrow$ liquid

D. Dispersed phase $\rightarrow$ Solid Dispersion medium $\rightarrow$ liquid

Answer: B

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37. When S in the form of S_8 is heated at $900K$, the initial pressure of $1atmosphere$ falls by $29\ \%$ at equilibrium. This is because of conversion of some S_8 to S_2. Find the K_p for reaction.

A. $2.55\ \ \mathrm{atm}^3$

B. $255\ \ \mathrm{atm}^3$

C. $25.5\ \ \mathrm{atm}^3$

D. None

Answer: A

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38. 2 moles of $FeSO_4$ in acid medium are oxidized by x moles of $KMnO_4$, whereas 2 moles of FeC_2O_4 in acid medium are oxidized by y moles of $KMnO_4$. The ratio of x and y is

A. $\frac{1}{3}$

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

C. $\frac{1}{4}$

D. $\frac{1}{5}$

Answer: A

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39. Silver cyanide $\xrightarrow{\Delta}$ Silver $+ A \xrightarrow{OH^-} X + Y + H_2O$ In the above sequence of reaction A,X,Y are respectively.

A. $C\overline{N}, (CN)_2, HCN$

B. $(CN)_2, C\overline{N}, OC\overline{N}$

C. $(CN)_2, N_2OCN$

D. $(CN)_2, C_2^{2-}, NO_2^-$

Answer: B

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40. Which of the following amino acid forms sulphide bond in polypeptide

A. Arg

B. Cys

C. Leu

D. Gly

Answer: B

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41. Which of the following amines forms a yellow oil with $NaNO_2 / conc.\ HCl$?

A. $C_6H_5 - NH - CH_3$

B. $C_6H_5 - NH - C_6H_5$

C. $C_2H_5 - NH - C_2H_5$

D. All of these

Answer: D

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42. Which of the following outer orbital complex has the highest magnetic moment ?

A. $\left[Mn(NH_3)_6\right]Cl_3$

B. $\left[Cr(NH_3)_6\right]Cl_3$

C. $\left[Ni(CO)_4\right]$

D. $\left[Co(CN)_6\right]^{4-}$

Answer: A

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43. In the given reaction $CH_3 - CH_2 - C \equiv N \xrightarrow{(i)\, CH_3MgCl} [X]$ [X] will be

A. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - CH_2 - CH_3$

B. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - CH_3$

C. $C_2H_5 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - C_2H_5OH$

D. $C_2H_5 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_5$

Answer: B

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44. Which of the following compound does not liberated oxygen gas on warming with conc. H_2SO_4 ?

A. SO_3

B. PbO_2

C. MnO_2

D. CrO_5

Answer: A

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45. The enthalpy of vaporization of a substance is 840 J per mol and its boiling point is $-173^{\circ}C$. Calculate its entropy of vaporization.

A. $8.4 \mathrm{J mol}^{-1} K^{-1}$

B. $49 \mathrm{J mol}^{-1} K^{-1}$

C. $21 \mathrm{J mol}^{-1} K^{-1}$

D. $12 \mathrm{J mol}^{-1} K^{-1}$

Answer: A

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