CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 71

Chemistry

1. Elements with their electronic configuration are given below:

Answer the following questions: Itbr. I: $1s^2 2s^2$

II: $1s^2 2s^2 2p^6$

III: $1s^2 2s^2 2p^6 3s^2$

IV $1s^2 2s^2 2p^3$

V: $1s^2 2s^2 2p^5$

Q. The most ionic compound will be formed between :

A. A and D

B. A and E

C. C and E

D. C and D

Answer: C

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2. In which of the following process maximum energy is released A)$S_{(g)} + e^- \rightarrow S^-_{(g)}$ B) $O^-_{(g)} + e^- \rightarrow O^{-2}_{(g)}$ C)$S^-_{(g)} + e^- \rightarrow S^{-2}_{(g)}$

A. $S^-(g) + e^- \rightarrow S^{2-}(g)$

B. $F(g) + e^- \rightarrow F^-(g)$

C. $N(g) + e^- \rightarrow N^-(g)$

D. $S(g) + e^- \rightarrow S^-(g)$

Answer: B

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3. If uncertainty in position and momentum are equal then uncertainty in velocity is.

A. $\frac{h}{2\pi}$

B. $\sqrt{\frac{h}{\pi}}$

C. $\frac{1}{2m}\sqrt{\frac{h}{\pi}}$

D. None of these

Answer: C

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4. What is the conjugate base of OH^-?

A. O_2

B. H_2O

C. O^-

D. O^{2-}

Answer: D

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5. How many $\sigma - bonds$ are present in N_2O_3 ?

A. 3

B. 4

C. 5

D. 6

Answer: B

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6. The angular momentum of electron in a given orbit is J . Its kinetic energy will be :

A. $\frac{1}{2}\frac{J^2}{mr^2}$

B. $\frac{Jv}{r}$

C. $\frac{J^2}{2m}$

D. $\frac{J^2}{2n}$

Answer: A

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7. Which of the following is an inner orbital complex as well as diamagnetic in behaviour [Atomic numbers Zn = 30, Cr = 24, Co = 27, Ni = 28.]

A. $\left[Zn(NH_3)_6\right]^{2+}$

B. $\left[Ni(NH_3)_6\right]^{2+}$

C. $\left[Cr(NH_3)_6\right]^{3+}$

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

Answer: D

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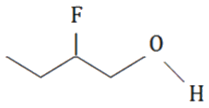
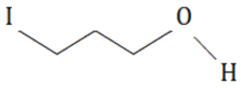
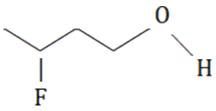
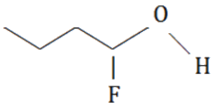
8. In which of the following compounds is hydroxylic proton the most acidic ?

A. 

B. 

C. 

D. 

Answer: D

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9. The quantity $\frac{PV}{k_BT}$ represents the (k_B: Boltzmann constant)

A. mass of the gas

B. K.E of the gas

C. number of moles of the gas

D. number of molecules of the gas

Answer: D

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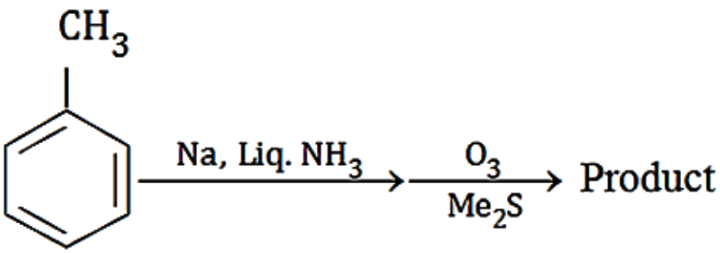
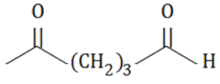
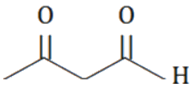
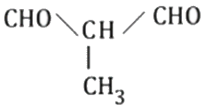
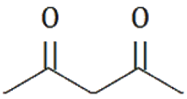
10.



A. 

B. 

C. 

D. 

Answer: B

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11. How much heat is required to change 5 gram ice $(0^\circ C)$ to steam at $100^\circ C$? Latent heat of fusion and vaporization for water are 80 cal/g and 540 cal/g respectively . Specific heat of water is 1 cal/ g/k.

A. 7200 cal

B. 3600 cal

C. 1800 cal

D. 900 cal

Answer: B

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12. If d represents the bond length, then select the correct relation.

A. $d_{N_2} = d_{N_2^+}$ and $d_{O_2} = d_{O_2^+}$

B. $d_{N_2} < d_{N_2^+}$ and $d_{O_2} > d_{O_2^+}$

C. $d_{N_2} < d_{N_2^+}$ and $d_{O_2} < d_{O_2^+}$

D. $d_{N_2} > d_{N_2^+}$ and $d_{O_2} = d_{O_2^+}$

Answer: B

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13. When the concentration of alkyl halide is triple and concentration of $\overset{\Theta}{O}H$ is reduced to half, the rate of S_{N^2} reaction increased by :

A. 3 times

B. 1.5 times

C. 2 times

D. 6 times

Answer: B

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14. $FeCl_3$ + Potassium thiocyanate $\rightarrow$ product , the colour of this product is

A. Red

B. Chocolate colour

C. Prussian blue

D. Colourless

Answer: A

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15. Equivalent conductane of 0.1 M HA (weak acid) solution is 10 S$cm^2 \text{equivalent}^{-1}$ and that at infinite dilution is 200 S cm^2 equivalent^{-1} Hence pH of HA solution is

A. 1.3

B. 1.7

C. 2.3

D. 3.7

Answer: C

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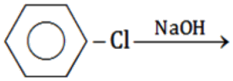
16. Which of the following reaction is possible ?

A. $CH_3 - Br \xrightarrow{\overline{O}H}$

B. $CH_3OH \xrightarrow{Br^-}$

C. 

D. $HC \equiv Ch \xrightarrow{NaOH}$

Answer: A

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17. In diborane, the two $H - B - H$ angles are nearly

A. $60^\circ, 120^\circ$

B. $97^\circ, 120^\circ$

C. $95^\circ, 150^\circ$

D. $120^\circ, 180^\circ$

Answer: B

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18. Introduction of inert gas (at the same temperature) will affect the equilibrium if :

A. Volume is constant and $\Delta n_g \neq 0$

B. Pressure is constant and $\Delta n_g \neq 0$

C. Volume is constant and $\Delta n_g = 0$

D. Pressure is constant and $\Delta n_g = 0$

Answer: B

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19. In the reaction, $CrO_5 + SnCl_2 \rightarrow CrO_4^{2-} + SnCl_4$,the element undergoing oxidation and reduction respectively, are:

A. Cr, Sn

B. Sn , Cr

C. Sn , O

D. Cl , O

Answer: C

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20. Which of the following is known as Hinsberg reagent ?

A. COOH - COOH

B. $\begin{matrix} COCl \\ | \\ COCl \end{matrix}$

C. $C_6H_5 - SO_2 - Cl$

D. $C_6H_5 - CO - Cl$

Answer: C

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21. What is the equilibrium expression for the reaction $P_4(s) + 50_2(g) \Leftrightarrow P_4O_{10}(s)$

A. $K_c \frac{[P_4O_{10}]}{[P_4][O_2]^5}$

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

C. $K_c = [O_2]^5$

D. $K_c \frac{[P_4O_{10}]}{5[P_4][O_2]}$

Answer: B

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22. Phenol and benzoic acid is separated by :

A. $NaHCO_3$

B. NaOH

C. Na

D. $NaNH_2$

Answer: A

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23. A reaction has $\Delta H = -33kJ$ and $\Delta S = -58J/K$. This reaction would be:

A. Spontaneous at all temperatures

B. Non - spontaneous at all temperatures

C. Spontaneous above a certain temperature

D. Spontaneous below a certain temperature

Answer: D

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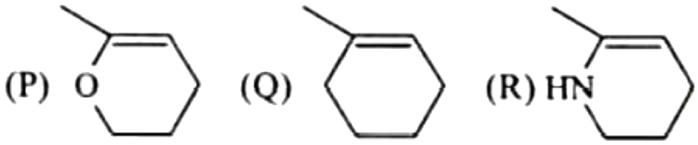
24. Rank the following in the increasing order of rate of reaction with HBr



A. $R > P > Q$

B. $R > Q > P$

C. $P > R > S$

D. $P > S > R$

Answer: A

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25. The pH of which salt is independent of its concentration :

(P)$(CH_3COO)C_5H_5NH$, (Q)NaH_2PO_4 , (R) Na_2HPO_4, (S)NH_4CN

A. 1,2,3,4

B. 1,4

C. 2,3

D. 1,2,3

Answer: A

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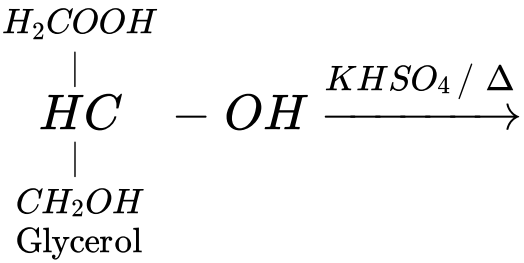
26. Find the total number of atoms in one molecule of the product formed



A. 5

B. 6

C. 7

D. 8

Answer: D

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27. Borate from green colour flame when burnt with (Conc. $H_2SO_4 +$ ethanol). Green colour flame is obtained due to due to formation of

A. $(C_2H_5O)_3B$

B. $(C_2H_5)_2BO_3$

C. $(C_2H_5)_3B$

D. A and C are correct

Answer: C

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28. The oxidation potential of a hydrogen electrode at $pH = 10$ and $P_{H_2} = 1$ is

A. 0.059 V

B. 0.59 V

C. 0.00 V

D. 0.51 V

Answer: B

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29. What fraction of an indicator Hin is in the basic form at a pH of 6 if pK_a of the indicator is 5?

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

B. $\frac{1}{11}$

C. $\frac{10}{11}$

D. $\frac{1}{10}$

Answer: C

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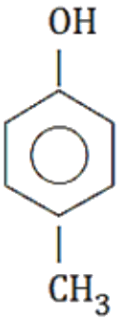
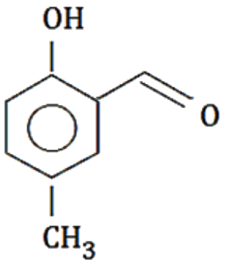
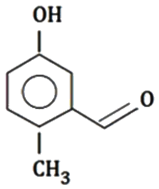
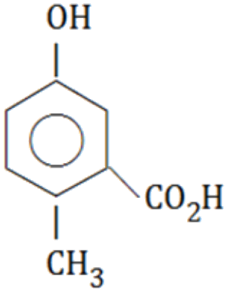
30.

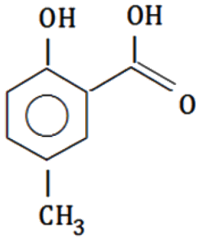


$+CHCl_3 + NaOH \rightarrow (A)$, Product A is

A. 

B. 

C. 

D. 

Answer: A

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31. Which of the following oxides reacts with both HCl and NaOH?

A. $Zn(OH)_2$

B. BeO

C. Al_2O_3

D. All of these

Answer: D

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32. The volume of 6 N and 2N HCl required to prepare 100 mL of 5N HCl is

A. $3:1$

B. $1:3$

C. $4:1$

D. $1:4$

Answer: A

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33. The order of leaving group ability is

$\underset{(I)}{.^{-}OAc.}\quad \underset{(II)}{^{-}OMe.}\quad \underset{(III)}{^{-}SO_3Me.}\quad \underset{(IV)}{^{-}SO_3CF_3}$ The order of leaving group ability is

A. $I > II > III > IV$

B. $IV > III > II > I$

C. $I > III > IV > II$

D. $IV > III > I > II$

Answer: D

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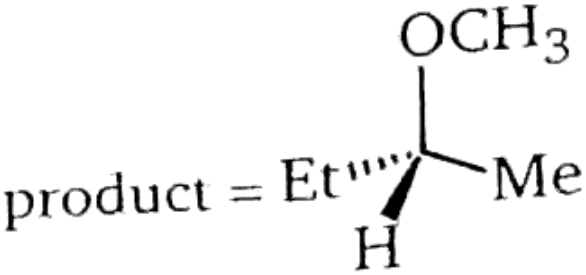
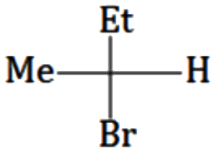
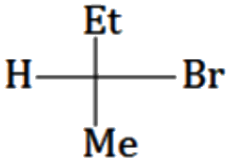
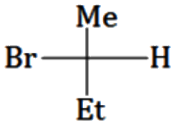
34. The back side attack on -- bromobutan by methoxide $\left(CH_3O^-\right)$ gives the product shown below j. which fischer projeaction represents 2-bromobutane used a sthe reactant in this raction ?

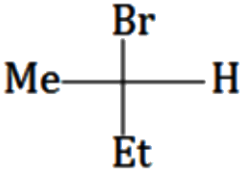


A.



B. 

C. 

D. 

Answer: D

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35. The correct relationship between free energy change in a reaction and the

corresponding equilibrium constant K_c is:

A. $-\Delta G^{\circ}$ = RTInK

B. ΔG = RTInK

C. ΔG = RTInK

D. ΔG° = RTInK

Answer: A

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36. A solution containing 500 g of a protein per liter is isotonic with a solution containing 3.42 g sucrose per liter. The molecular mass of protein in 5 x 10^{x}, hence x is.

A. 2

B. 3

C. 4

D. 5

Answer: C

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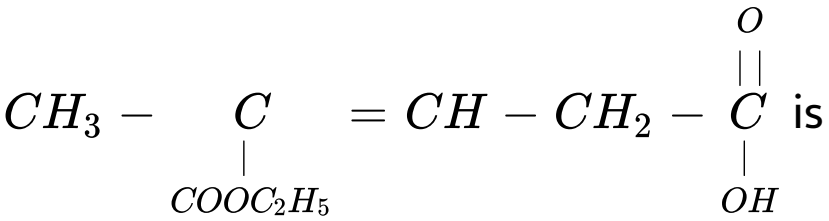
37. The IUPAC name of



is

A. 4 - ethoxycarbonylpent - 3 - enoic acid

B. 4 - ethanoyloxypent -3- enoic acid

C. 3 ethoxycarbonylbut -2- enecarboxylic acid

D. 3 - ethoxycarbonylpent -3- enoic acid

Answer: A

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38. The density of 3 M solution of $Na_2S_2O_3$ is 1.25g/mL . What is % by weight of $Na_2S_2O_3$?

A. 36.24

B. 37.92

C. 40.24

D. 38.24

Answer: B

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39. Which of the following polymer is not synthesized from acidic monomer ?

A. Nylon - 6, 6

B. Dacron

C. Bakelite

D. Teflon

Answer: D

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40. Which of the following solid has maximum melting points?

A. Ice

B. dry ice

C. SiO_2

D. KCl

Answer: C

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41. Which of the following order is correct for the property mentioned in brackets?

A. $BF_3 < BCl_3 < BBr_3 < Bl_3 < Bl_3$

(the lewis acid strength)

B. $CO_2 < SiO_2 < SnO_2 < PbO_2$

(increasing oxidising power)

C. $TI < In < Ga < Al$ (stability of +1 oxidation state)

D. $Al < Ga < In < TI$ (stability of +1 oxidation state)

Answer: C

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42. A mixture of cyclohexane and ethanol shows

A. ideal solution behaviour

B. negative deviation from Rault's law

C. positive deviation from Rault's low

D. cannot be predicted

Answer: C

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43. The value of 'spin only' magnetic moment for one of the following configuration is $2.84B.M.$ The correct one is:

A. d^5 (in strong field ligand)

B. d^3 (in weak as well as strong field)

C. d^4 (in weak field ligand)

D. d^4 (in strong ligand field)

Answer: D

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44. The reason for the distinct difference in the properties of CO_2 and SiO_2 is

A. Carbon is more electronegative than O and in case of SiO_2 oxygen is more electronegative than silicon

B. Carbon has small size and forms a π bond with good overlap whereas silicon has larger size hence has a poor π - overlap

C. First ionization potential of carbon is higher than that of silicon

D. Carbon has only 'p' orbitals and lacks 'd' orbitals whereas silicon has 'd' orbitals

Answer: B

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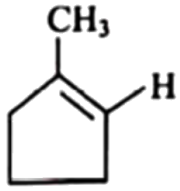
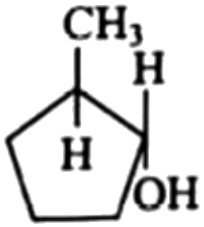
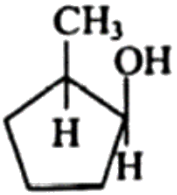
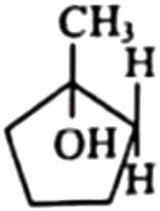
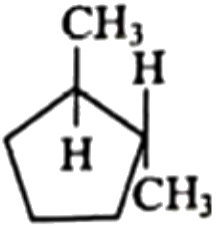
45. 

(A); Product 'A' of the reaction is ,

A. 

B. 

C. 

D. 

Answer: A

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