CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET TEST 102

Chemistry

1. Which of the following compounds can form H-bonding with each other ?

A. CH_3COOH and H_2O

B. Phenol and CH_4

C. CH_3F and acetone

D. PH_3 and HF

Answer: A

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2. Einstein's photoelectric equation states that $E_k = hv - W$. In this equation E_k refers to

A. kinetic energy of all ejected electrons

B. mean kinetic energy of emitted electrons

C. minimum kinetic energy of emitted electrons

D. maximum kinetic energy of emitted electrons

Answer: D

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3. The IUPAC name of $CH_3 - \underset{\underset{CONH_2}{|}}{C} = CH - CH_2 - \overset{\overset{O}{||}}{\underset{\underset{OH}{|}}{C}}$ is

A. 4 - carbamoylpent -3- enoic acid

B. 4 - amido -4- methyl -but -3- enoic acid

C. 3-amido -but-2-enecarboxylic acid

D. 4-carboxy -2-methyl - but -2-enamide

Answer: A

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4. In what ratio a 80% (wt./vol) solution of H_2SO_4 be mixed to 20% (wt./vol) of H_2SO_4 to produce 40% (wt/vol) H_2SO_4 solution

A. $2:1$

B. $1:2$

C. $1:3$

D. $3:1$

Answer: B

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5. Which of the following on adding will not change the pH of 100mL x M HCl (dil) solution:

A. 100mL of pure water

B. 100 mL of 2xM HCl

C. 50 mL of pure water

D. 50 mL of xM HCl

Answer: D

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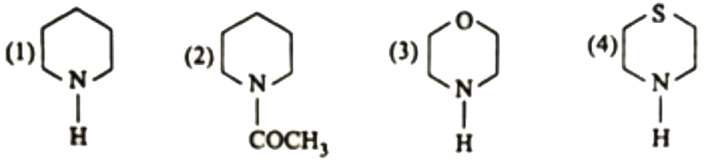
6. Arrange basicity of given compounds in decreasing order



A. 4,1,3,2

B. 1,4,3,2

C. 1,4,2,3

D. 1,2,3,4

Answer: B

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7. The ratio among most probable velocity, mean velocity and root mean velocity is given by

A. $1:2:3$

B. $1:\sqrt{2}:\sqrt{3}$

C. $\sqrt{2}:\sqrt{3}:\sqrt{8/\pi}$

D. $\sqrt{2}:\sqrt{8/\pi}:\sqrt{3}$

Answer: D

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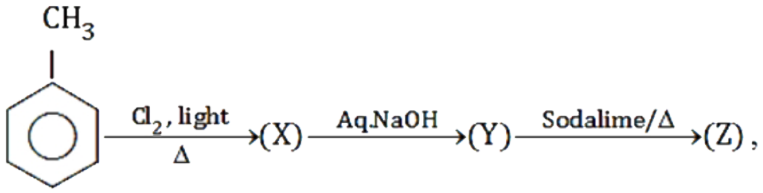
8.



Product (Z) is

A. benzoic acid

B. p - cresol

C. 2,4- dihydroxy toluene

D. benzene

Answer: D

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9. Auto-oxidation of bleaching powder gives:

A. only calcium chlorate

B. only calcium chloride

C. only calcium hypochlorite

D. Both A and B

Answer: D

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10. For an ionic crystal of the general formula AX and coordination number 6, the value of radius ratio will be:

A. greater than 0.73

B. between 0.41 and 0.73

C. between 0.41 and 0.22

D. less than 0.22

Answer: B

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11. The incorrect order is

A. $HF < HCl < HBr < Hl$: Acidic strength

B. $HF > HCl > HBr > Hl$: Thermal stability

C. $HF > HCl > HBr > Hl$: Boiling point

D. $HF > HCl > HBr > Hl$: Bond dissociation

Answer: C

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12. In the given reaction

$$CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - Br \xrightarrow{Alc.KOH\ /\ \Delta} (X)$$

X will be

A. $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{C} = CH_2$

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

C. $CH_2 = CH - \underset{\underset{CH_3}{|}}{CH} - CH_3$

D. $CH_3 - CH = CH - CH_2 - CH_2 - CH_3$

Answer: A

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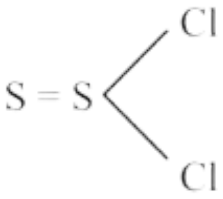
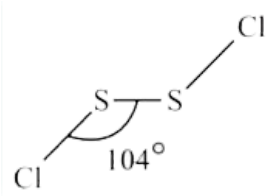
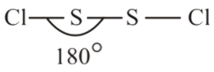
13. Which of the following is correct structure of S_2Cl_2 ?

A. 

B. 

C. 

D. $Cl = S = S = Cl$

Answer: B

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14. Cu^+ ions reacts with Fe^+ ion according to the following reaction $Cu^+ + 2Fe^{2+} \Leftrightarrow Cu + 2Fe^{3+}$ At equilibrium the concentration of Cu^{2+} ions is not changed by the addition of

A. Cu^{2+}

B. Fe^{2+}

C. Cu

D. Fe^{3+}

Answer: C

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15. Which of the following salts undergoes hydrolysis ?

A. Na_2SO_4

B. CH_3COOK

C. KNO_3

D. NaBr

Answer: B

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16. In the given reaction

$$CH_3 - CH_2 - CH_2 - O - CH_2 - CH_3 \xrightarrow{Conc.\,Hl} (X) + (Y)$$

A. $CH_3 - CH_3 - CH_2OH$ and $CH_3 - CH_2 - I$

B. $CH_3 - CH_2 - CH_2 - I$ and $CH_2 - CH_2 - OH$

C. $CH_3 - CH_2 - CH_2 - I$ and $CH_2 = CH_2$

D. $CH_3 - CH = CH_2$ and $CH_2 = CH_2$

Answer: A

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17. What will be the correct order for the wavelengths of absorption in the visible region for the following:

$[Ni(NO_2)_6]^{4-}$, $[Ni(NH_3)_6]^{2+}$, $[Ni(H_2O)_6]^{2+}$?

A. $[Ni(H_2O_6)]^{2+} \approx [Ni(NH_3)_6]^{2+} \approx [Ni(NO_2)_6]^{4-}$

B. $[Ni(NH_3)_6]^{2+} \approx [Ni(NO_2)_6]^{4-} \approx [Ni(H_2O_6)]^{2+}$

C. $[Ni(H_2O_6)]^{2+} \approx [Ni(NO_2)_6]^{4-} \approx [Ni(NH_3)_6]^{2+}$

D. $[Ni(H_2O_6)]^{2+} \approx [Ni(NH_3)_6]^{2+} \approx [Ni(NO_2)_6]^{4-}$

Answer: D

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18. In the given reaction $C_6H_5 - CH_2 - CH_3 \xrightarrow{NBS} (X) \xrightarrow{Alc.KOH/\Delta} (Y)$ In the given reaction X and Y respectively are

A. $C_6H_5 - CHBr - CH_3$ and $C_6H_5 - C \equiv CH$

B. $C_6H_5 - CBr_2 - CH_3$ and $C_6H_5 - C \equiv CH$

C. $C_6H_5 - CBr_2 - CH_3$ and $C_6H_5 - CBr \equiv CH_2$

D. $C_6H_5 - CHBr - CH_3$ and $C_6H_5 - CH = CH_2$

Answer: D

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19. Among the elements with atomic number 9, 20, 17and 36 which is highly electropositive ?

A. Element with atomic number 9

B. Element with atomic number 36

C. Element with atomic number 17

D. Element with atomic number 20

Answer: D

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20. Two platinum electrodes were immersed in a solution of $CuSO_4$ and electric current was passed through the solution. After some time, it was found that colour of $CuSO_4$ disappeared with evolution of gas at the electrode. The colourless solution contains.

A. platinum sulphate

B. copper hydroxide

C. copper sulphate

D. sulphuric acid

Answer: D

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21. Which of the following is the correct order for increasing bond angle ?

A. $NH_3 < PH_3 < AsH_3 < SbH_3$

B. $H_2O < OF_2 < Cl_2O$

C. $H_3Te^+ < H_3Se^+ < H_3S^+ < H_3O^+$

D. $BF_3 < BCl_3 < BBr_3 < BI_3$

Answer: C

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22. The energy of hydrogen atom in excited state is -3.4 eV. The angular momentum of electron is

A. $\frac{3h}{2\pi}$

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

C. $\frac{2h}{5\pi}$

D. $\frac{h}{5\pi}$

Answer: B

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23. Potassium permanganate acts as an oxidant in neutral, alkaline as well as acidic media. The final product obtained from it in three condition are respectively:

A. MnO_4^{2+}, Mn^{3+} and Mn^{2+}

B. MnO_2, MnO_2 and Mn^{2+}

C. MnO_2, MnO_2^+ and Mn^{2+}

D. MnO, MnO_2 and Mn^{2+}

Answer: B

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24. On mixing $10mL$ of acetone with $40mL$ of chloroform,the total volume of the solution is

A. $< 50mL$

B. $> 50mL$

C. $= 50mL$

D. cannot be predicted

Answer: A

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25. Which among the following compounds is used for protection of carbonyl groups ?

A. HCN

B. CH_3OH

C. $\begin{array}{l} CH_2-OH \\ | \\ CH_2-OH \end{array}$

D. C_2H_5OH

Answer: C

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26. Which of the of carbonyl compound can be differentiated by $I_2/NaOH$?

A. C_6H_5-CHO and $C_6H_5-\overset{\overset{O}{||}}{C}-CH_2-CH_3$

B. $C_6H_5-\overset{\overset{O}{||}}{C}-CH_3$ and $CH_3-CH_2-\overset{\overset{O}{||}}{C}-CH_3$

C. $CH_3-CH_2-\overset{\overset{O}{||}}{C}-CH_2-CH_3$ and $C_6H_5-\overset{\overset{O}{||}}{C}-CH_2-CH_3$

D. $C_6H_5 - \overset{\overset{O}{||}}{C} - \underset{\underset{CH_3}{|}}{CH} - CH_3$ and $C_6H_5 - \overset{\overset{O}{||}}{C} - CH_3$

Answer: D

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27. Calculate enthalpy change of the following reaction :

$H_2C = CH_{2(g)} + H_{2(g)} \rightarrow H_3C - CH_{3(g)}$

The bond energy of $C - H, C - C, C = C, H - H$ are $414, 347, 615$ and $435 kJ mol^{-1}$ respectively.

A. $+125 kJ$

B. $-12.5 kJ$

C. $-125 kJ$

D. $+12.5 kJ$

Answer: C

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28. Which metal sulphide is soluble in excess NH_3 solution ?

A. Zns

B. MnS

C. FeS

D. Cr_2S_3

Answer: D

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29. The rusting of iron takes place as $2H^+ + 2e + \frac{1}{2}O_2 \to H_2O(l), E^\circ = +1.23V$ $Fe^{2+} + 2e \to Fe(s), E^\circ = -0.44V$ Thus, ΔG° for the net process is

A. -322kJ/mol

B. -161kJ/mol

C. -1522kJ/mol

D. -76kJ/mol

Answer: A

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30. The molar heat capacity of water at constant pressure, C_P , is $75JK^{-1}mol^{-1}$. When $1.0kJ$ of heat is supplied to $100g$ of water which is free to expand, the increase in temperature of water is

A. 1.2 K

B. 2.4 K

C. 4.8 K

D. 6.5 K

Answer: B

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31. Which of the following will form β - amino alcohol with ethylene oxide ?

A. $HOH / H^{\oplus}$

B. NH_3

C. $(CH_3)_2CuLi$

D. CH_3MgBr

Answer: B

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32. Which one of the following pairs is correctly matched ?

A. Sucrose: reducing sugar

B. Glucose: mutarotation

C. Fructose : monosaccharide

D. Sucrose : monosaccharide

Answer: B

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33. The pH of a solution which is three times as acidic as pure water is

A. 6.7

B. 3.5

C. 7.0

D. 6.523

Answer: D

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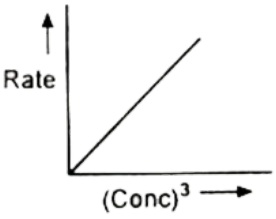
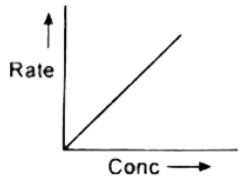
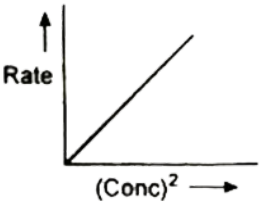
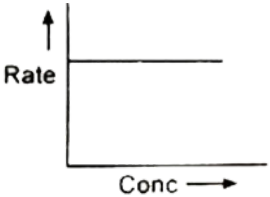
34. Which of the following graph is correct for zero order reaction?

A. 

B. 

C. 

D. 

Answer: D

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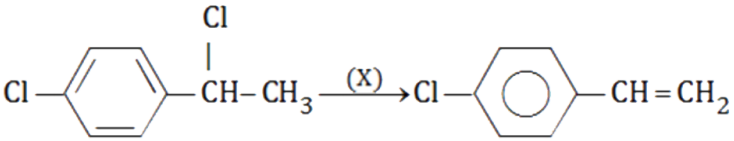
35. In the given reaction sequence



X will not be

A. alc . KOH / Δ

B. $C_2H_5\overline{O} / \Delta$

C. alc. $NaOH / \Delta$

D. $NaNH_2 / \Delta$

Answer: D

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36. Which one of the following molecules can serve as a monomer for an addition polymer?

A. $H_2C = CH - C_6H_5$

B. $H_2C = CHCN$

C. $ClCH = CH_2$

D. All of these

Answer: D

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37. Which of the following ligand gives chelate complexes ?

A. SCN^-

B. $C_2O_4^{2-}$

C. Pyridine

D. $NH_2 - \overset{+}{N}H_3$

Answer: B

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38. What is the possible number of stereoisomerism for 2,3-dibromobutane?

A. 4

B. 3

C. 2

D. 1

Answer: B

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39. A reaction $X_2(g) \rightarrow Z(g) + \frac{1}{2}Y(g)$ exhibits an increase in pressure from 150 mm to 170 mm in 10 minutes. The rate of disappearance of X_2 in mm per minute is

A. 2 mm per minute

B. 8 mm per minute

C. 4 mm per minute

D. 6 mm per minute

Answer: C

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40. Which halogen oxidizes water at room temperature but does not undergo disproportionation into it?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: A

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41. Hydrolysis of sucrose is called

A. Saponification

B. Inversion

C. Hydration

D. All of these

Answer: B

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42. KF has NaCl structure. The edge length of its unit cell has been found to be 537.6 pm The distance between K^+ in and F^- in KF is

A. 537.6 pm

B. 1075.2 pm

C. 268.5 pm

D. None of these

Answer: C

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43. In the given reaction $C_6H_5 - \overset{O}{\overset{||}{C}} - CH_3 \xrightarrow[(ii)\, H_2O/H^+]{(i)\, C_2H_8MgBr} (X)$ X will be

A. 1° - alcohol

B. 2° - alcohol

C. Optically inactive 3° - alcohol

D. Optically active 3° - alcohol

Answer: D

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44. Arrange reactivity of given carboxylic acids for esterification reaction in decreasing order

1. HCOOH

2. CH_3CH_2COOH

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

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

A. 4,3,2,1

B. 1,2,3,4

C. 3,4,2,1

D. 2,3,4,1

Answer: B

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45. Which of the following is not correctly matched?

A. Acidic oxides N_2O_5, SO_2, ClO_7

B. Basic oxides K_2O, CaO , MgO

C. Neutal oxides CO_2, CO, N_2O

D. Amphotric oxides SnO, ZnO, Al_2O_3

Answer: C

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