CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 65

Chemistry

1. The region where probability density function reduces to zero is called

A. probability density region

B. nodal surface

C. orientation surface

D. wave function

Answer: B

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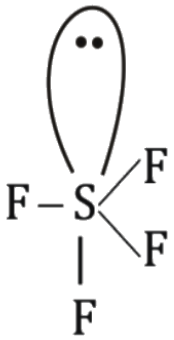
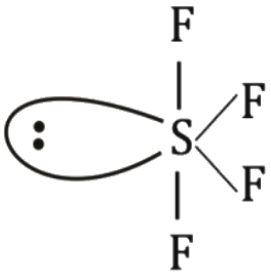
2. Which of the following shapes of SF_4 is more stable and why ?



(i)



(ii)

A. (i) , due to 3 lp - bp repulsion at 90°

B. (ii), due to 2 lp - bp repulsion

C. Both are equally stable due to 2 lp - bp repulsions

D. Both are unstable since SF_4 has tetrahedral shape

Answer: B

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3. IUPAC name of $CH_3CH_2CH_2\underset{\underset{CH_2OH}{|}}{CH}-CH_2CH_3$ is

A. 3 - Propylbutan -1 - ol

B. 2 - Ethypentan 1- ol 3 - Methyl hydroyhexane

C. 3 - Methyl hydroxyhexane

D. 2 - Ethyl - 2 propyl ethanol

Answer: B

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4. Lewisite is a poisonous gas having formula

A. $CHCl = CHCl$

B. $CHCl = CHAsC_2$

C. $CHCl = CHCl_2$

D. $CHCl_2CHCl_2$

Answer: B

5. The types of attractive force between a polar molecular and non - polar molecule are

A. dipole - dipole forces

B. hydrogen bonds

C. dipole - induced dipole forces

D. dispersion forces

Answer: C

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6. Oxidation number if iodine in IO_3^-, IO_4^-, KI and I_2 respectively are

A. $-2, -5, -1, 0$

B. $+5, +7, -1, -0$

C. $+2, +5, +1, 0$

D. $-1, +1, 0, +1$

Answer: B

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7. Zn gives H_2 gas with H_2SO_4 and HCI but not with HNO_3 because

A. Zn acts as oxidising agent when reacts with HNO_3

B. HNO_3 is weaker acid than H_2SO_4 and HCl

C. Zn is above the hydrogen in electrochemical series

D. NO_3^- is reduced in preference to H^+ ion

Answer: D

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8. It is recommended that ammonia bottles be opened after cooling in ice for sometime. This is because

A. it has high vapour pressure

B. it comes out with brisk effervescence

C. it is a corrosive fluid

D. it vaporises at room temperature

Answer: A

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9. Sodium chloride has a crystalline structure made up of Na^+ and Cl^- ions. Why does NaCl not conduct electricity in solid state ?

A. Solid do not conduct electricity

B. The ions of NaCl become mobile only in molten state and are not free to move in solid state

C. The crystalline structure does not have ions

D. When a bond is formed between ions they lose their charge

Answer: B

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10. Two reactions are given below :

(i) $CO_{(g)} + \frac{1}{2}O_{2(g)} \rightarrow CO_{2(g)}$

(ii) $Ag_2O_{(s)} \rightarrow 2Ag_{(s)} + \frac{1}{2}O_{2(g)}$

Which of the following statements is true ?

A. For (i) $\Delta H < \Delta E$ and for (ii) $\Delta H > \Delta E$

B. For (i) $\Delta H > \Delta E$ and for (ii) $\Delta H > \Delta E$

C. For both (i) and (ii) $\Delta H > \Delta E$

D. For both (i) and (ii) $\Delta H < \Delta E$

Answer: A

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11. Cellulose in the form of plants is a food for cattles and sheeps but not for human beings. Explain.

A. human body does not contain cellulose hence cellulose cannot be broken into D - glucose

B. human saliva cannot break down plant cellulose in small pieces

C. bile juice present in cattle helps them to digest cellulose

D. human beings have a smaller stomach than cattle

Answer: A

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12. Identify (X), (Y) and (Z) in the given reaction.

$$X + Y \xrightarrow{Z} \underset{\text{3-Hydroxybutanal}}{CH_3 - \overset{\overset{OH}{|}}{CH} - CH_2 - CHO}$$

A. $HCHO, CH_3CHO, KOH$

B. $CH_3CHO, CH_3CHO, NaOH$

C. $CH_3CH_2OH, HCHO, H_2SO_4$

D. $CH_3CH_2CHO, HCHO$, Dry ether

Answer: B

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13. According to Werner's theory of coordination compounds ,

A. primary valency is ionisable

B. secondary valency is ionisable

C. primary and secondary valencies are ionisable

D. neither primary nor secondary valency is ionisable

Answer: A

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14. The process of production of syngas from sewage , saw - dust ,scrap wood , etc . is quite common these days. The production of syngas from coal is called

A. carbonisation

B. water gas shift

C. coal gasification

D. synthesis gas shift

Answer: C

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15. Effective nuclear charge $\left(Z_{eff}\right)$ for a nucleus of an atom is defined as

A. shielding of the outermost shell electrons from the nucleus by the innermost shell electrons

B. the net positive charge experienced by electron from the nucleus

C. the attractive force experienced by the nucleus from electron

D. screening of positive charge on nucleus by innermost shell electrons

Answer: B

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16. Which of the following overlaps of atomic orbitals does not form π-bond if z-axis is the internuclear axis?

A. s - orbital and s - orbital

B. s - orbital and p_z orbital

C. p_z - orbital and p_z orbital

D. p_y - orbital and p_y - orbital

Answer: D

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17. Chlorine exists in two isotopic forms Cl-37 and Cl-35 but its atomic mass is 35.5. this indicates the ratio of Cl-37 and Cl-35 is approximately

A. $1:2$

B. $1:1$

C. $1:3$

D. $3:1$

Answer: C

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18. Which step is chain propagation step in the following mechanism ?

(i) $Cl \xrightarrow{hv} Cl^{\cdot} + Cl^{\cdot}$

(ii) $Cl^{\cdot} + CH_4 \rightarrow^{\cdot} CH_3 + HCl$

(iii) $Cl^{\cdot} + Cl^{\cdot} \rightarrow Cl_2$

(iv) $CH_3 +^{\cdot} Cl \rightarrow CH_3Cl$

A. (i)

B. (ii)

C. (iii)

D. (iv)

Answer: B

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19. Among the following which are ambidentate ligands?

(i) NO_2^-

(ii) NO_3^-

(iii) $C_2O_4^{2-}$

(iv) SCN^-

A. (i) and (iii)

B. (i) and (iv)

C. (ii) and (iii)

D. (ii) and (iv)

Answer: A

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20. Which of the following statements is true ?

A. Soda lime is a mixture of sodium hydroxide and potassium hydroxide

B. Methane can be prepared by Wurtz reaction

C. In alkanes all carbon atoms are sp^3 hybrdised

D. neo - Pentane yields three different monochloro derivatives

Answer: C

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21. Which of the following is not correct for enzyme catalysis?

A. The enzyme activity is maximum at optimum pH which is between 5 - 7

B. Each enzyme is specific for a given reaction

C. The favourable temperature range of enzyme activity is between $50 - 60^{\circ} C$

D. The enzymatic activity is increased in presence of certain substances called to co - enzymes

Answer: C

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22. the correct IUPAC name of the following compound $\left[Cr(NH_3)_5(NCS)\right][ZnCl_4]$ is

A. pentaammine isothicyanato chromium (III) tetra chlorozicate (II)

B. pentammine isothio cyanatezinc chloride chromate (III)

C. pentammine isothiocyanato chromate (II)

D. isothio cyanatopenta ammine chromium (II) zinc chloride(IV)

Answer: A

23. The value of Henry's law constant for some gases at 293 K is given below. Arrange the gases in the increasing order of their solubility .

He:144.97 kbar, H_2:69.16 kbar, N_2:76.48 kbar, O_2:

34.86 kbar

A. $He < N_2 < H_2 < O_2$

B. $O_2 < H_2 < N_2 < He$

C. $H_2 < N_2O_2 < He$

D. $He < O_2 < N_2 < H_2$

Answer: A

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24. If the instantaneous rate of appearance of $NO_2(g)$ is 0.0400 M/s at some moment in time, what is the rate of disappearance of $N_2O_5(g)$ in M/s?

$$\left[N_2O_5(g) \rightarrow 2NO_2(g) + \frac{1}{2}O_2(g)\right]$$

A. 0.02

B. 0.01

C. 0.04

D. 0.08

Answer: A

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25. The process of combining metals present in their native ores with mercury to form an alloy is called

A. alloying

B. galvanisation

C. amalgamation

D. crystallisation

Answer: C

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26. Ammonia is used in detection of Cu^{2+} ion because

A. aqueous solution of NH_3 reacts with Cu^{2+} ion to form deep blue coloured complex

B. NH_3 reacts with Cu^{2+} ion to give blue precipitate of CuO

C. aqueous solution of NH_3 reacts with Cu^{2+} ion to form white coloured complex

D. NH_3 reacts with Cu^{2+} ion to give green precipitate CuO

Answer: A

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27. Which of the following statement regarding hydrides is not correct ?

A. Ionic hydrides are crystalline , non - volatile and non - conducting in solid state

B. Electron - deficient hydrides act as Lewis acids or electron acceptors

C. Elements of group - 13 form electron - deficient hydrides

D. Elements of group 15-17 form electron - precise hydrides

Answer: D

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28. 0.2 g of an organic compound contains C, H and O. On combustion , it yields 0.15 g CO_2 and 0.12 h g H_2O . The percentage of C, H and O respectively is

A. $C = 15\,\%$, $H = 20\,\%$, $O = 65\,\%$

B. $C = 10\,\%\,, H = 8.2\,\%\,, O = 81.8\,\%$

C. $C = 12.2\,\%\,, H = 8.8\,\%\,, O = 79\,\%$

D. $C = 20\,\%\,, H = 6.66\,\%\,, O = 73.34\,\%$

Answer: D

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29. BF_3 is used as a catalyst in various organic reactions because

A. it is a strong reducing agent

B. it is highly reactive compound

C. it is a weak Lewis acid

D. it is a strong Lewis acid

Answer: D

30. Arrange the following compounds in decreasing order of their boiling points. (i) CH_3Br

CH_3CH_2Br

$CH_3CH_2CH_2Br$

$CH3CH_2CH_2CH_2Br$

A. $(i) > (ii) > (iii) > (iv)$

B. $(iv) > (iii) > (ii) > (i)$

C. $(i) > (iii) > (ii) > (iv)$

D. $(iii) > (iv) > (i) > (ii)$

Answer: B

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31. k_2CO_3 cannot be prepared by solvay process because

A. $KHCO_3$ is less soluble than $NaHCO_3$

B. $KHCO_3$ is too soluble to get separated from solution

C. K_2O_3 is too soluble to be precipitated by KCl

D. K_2CO_3 is less soluble than Na_2CO_3

Answer: B

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32. Match the column I with Column II and mark the appropriate choice

	Column I		**Column II**
(p)	Bacteriostatic	(i)	Crucial to body's communication process
(q)	Bactericidal	(ii)	Inhibit growth of microbes
(r)	Narrow spectrum antibodies	(iii)	Kill microbes
(s)	Receptors	(iv)	Effective against single disease

A.

$(p)-(i),(q)-(ii),(r)-(iv),(s)-(iii)$

B.

$(p)-(ii),(q)-(iii),(r)-(iv),(s)-(i)$

C.

$(p)-(iii),(q)-(iv),(r)-(i),(s)-(ii)$

D.

$(p)-(iv),(q)-(i),(r)-(ii),(s)-(iii)$

Answer: B

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33. Which of the following statement regarding S_N1 reaction shown by alkyl halide is incorrect?

A. the added nucleophile plays no kinetic role in S_N1 reaction

B. The S_N1 reaction involves the inversion of configuration of the optically active substrate

C. the S_N1 reaction on the chiral starting material end up with racemization of the product

D. The more stable the carbocation intermediate the faster the S_N1 reaction

Answer: B

34. Polychlorinated biphenyls (PCBs) are

I. non - carcinogenic in nature

II. Carcinogenic in nature

III. Used as cleansing solvent

Choose the correct options

A. Both I and III

B. Both II and III

C. only II

D. only III

Answer: B

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35. The dissociation constant of a substituted benzoic acid at $25^{\circ}C$ is 1.0×10^{-4}. The pH of $0.01M$ solution of its sodium salt is

A. 7

B. 6

C. 8

D. 4

Answer: C

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36. Why is the $C-O-H$ bond angle in alcohols slightly less than the tetrahedral angle whereas the C-O-C bond angle in ether is slightly greater?

A. of repulsion between the two bulky R groups

B. O atom in both alcohols and ethers is sp^3 - hybridised

C. lone pair - lone pair repulsion is greater than bond pair - bond pair repulsion

D. none of these

Answer: A

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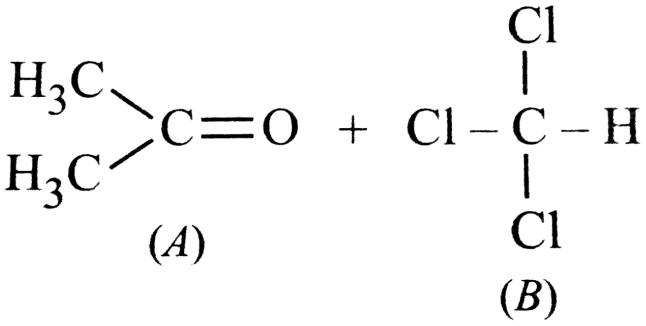
37. When acetone and chloroform are mixed together, which of the following observations

is correct ?



A. A - A and B - B interactions are stronger than A - B interactions

B. A - A and B - B interactions are weaker than A - B interactions

C. A - A, B - B and A - B interactions are equal

D. The liquids form separate layers and are immiscible

Answer: B

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38. What will be the molar conductivity of Al 3+ ions at infinite dilution if molar conductivity of $Al_2(SO_4)_3$ is 858 S cm^2 mol^{-1} and ionic conductance of SO_4^{2-} is 160 S $cm^2\mathrm{mol}^{-1}$ at infinite dilution ?

A. $189 Scm^2 mol^{-1}$

B. $698 Scm^2 mol^{-1}$

C. $1018 Scm^2 mol^{-1}$

D. $429 Scm^2 mol^{-1}$

Answer: A

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39. 0.6 moles of PCl_5, 0.3 mole of PCl_3 and 0.5 mole of Cl_2 are taken in a 1 L flask to obtain the following equilibrium ,

$PCl_{5(g)} \Rightarrow PCl_{3(g)} + Cl_{2(g)}$ If the equilibrium constant K_c for the reaction is 0.2 Predict the direction of the reaction.

A. Forward direction

B. Backward direction

C. Direction of the reaction can not be predicted

D. Reaction does not move in any direction

Answer: B

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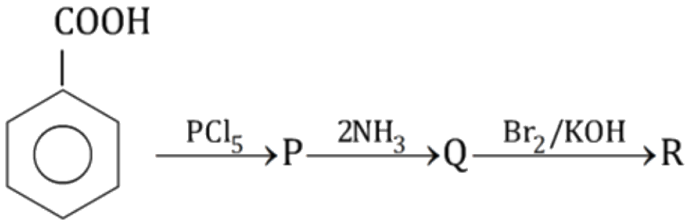
40. What is the end product in the following sequence of reactions ?



A. Aniline

B. Phenol

C. Benzene

D. Benzenediazonium chloride

Answer: A

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41. Which of the following is not true for themoplastic polymers ?

A. Thermoplastics are linear polymers

B. They soften and melt on heating

C. Molten polymer can be remoulded into any shape

D. They have cross - linkage which break on heating

Answer: D

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42. Arrange the following alcohols in order of increasing reactivity towards sodium metal.

(i) CH_3OH

(ii) $(CH_3)_2CH - OH$

(iii) CH_3CH_2OH

(iv) $(CH_3)_3C - OH$

A. $(iii) < (ii) < (i)$

B. $(ii) < (i) < (iii)$

C. $(i) < (ii) < (iii)$

D. $(iii) < (i) < (ii)$

Answer: C

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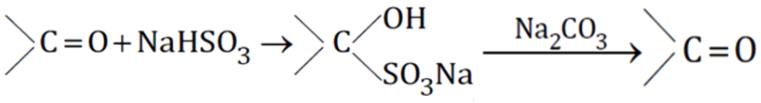
43. Study the given reactions and identify the process which is carried out .



A. It is used for purification of aldehydes and ketones

B. It is used to distinguish aldehydes and ketones

C. It is used to prepare cyclie aldehydes and ketones

D. It is used to study polar nature of aldehydes and ketones

Answer: A

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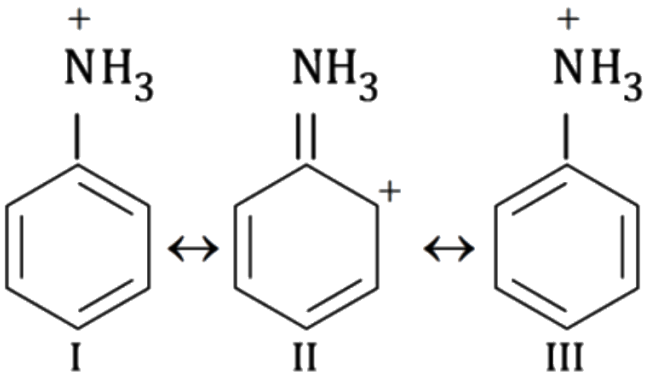
44. Canonical structures of anilinium ion obtained by accepting a proton are given below. Choose the correct statements .



A. Anilinium ion has tow stable canonical structures I and III

B. II is not acceptable structure because carbonium ion is less stable

C. Only I and III are acceptable aromatic canonical structures since II is not non - aromatic

D. Anilinium ion has three stable canonical structures I, II and III

Answer: A

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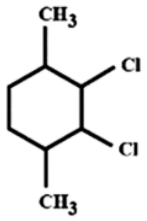
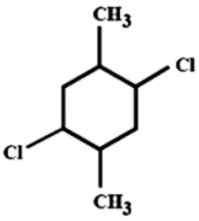
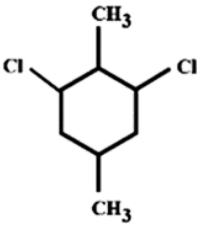
45. Which of the following compounds will have highest melting point ?



I



II



II

A. I

B. II

C. III

D. All have equal melting point

Answer: B

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