CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 116

Chemistry

1. Let 'A ' be the methyl ester of an organic monocarboxylic acid. The vapour density of 'A' is 37. What is the molecular weight of the acid ?

A. 46

B. 60

C. 70

D. 74

Answer: B

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2. Calculate the pH of a buffer when the reduction potential of hydrogen electrode placed in the buffer solution is found to be $-0.413V$.

A. 10

B. 4

C. 7

D. 12

Answer: C

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3. How many litres of water must be added to $1L$ of an aqueous solution of HCl with a pH of 1 to create an aqueous solution with pH of 2?

A. 2.0

B. 9.0

C. 0.1

D. 0.9

Answer: B

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4. In the conversion of N_2 into N_2^+ the electron will be lost from which of the following molecular orbital ?

A. $\sigma^* 2p_x$

B. $\sigma 2p_z$

C. $\pi 2p_x$

D. $\pi^* 2p_x$

Answer: B

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5. Which vitamin deficiency causes pernicious anaemia?

A. Vitamin B_1

B. Vitamin B_0

C. Vitamin B_{12}

D. Vitamin K

Answer: C

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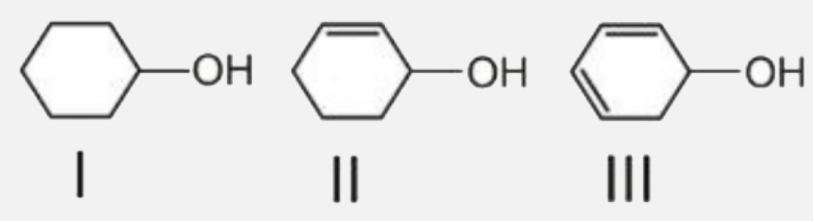
6. The order which can explain the ease of dehydration of following is



A. $I < II > III$

B. $III > II > I$

C. $I > III > II$

D. $III < I < II$

Answer: B

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7. Calculate the volume of O_2 liberated at STP by passing 5A current for 193 sec through acidicied water.

A. 56 mL

B. 112 mL

C. 158 mL

D. 965 mL

Answer: A

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8. What are the limitations of Mendeleev's periodic table?

A. Many elements have several isotopes.

B. Noble gases do not form compounds.

C. Some groups stand divided into two sub groups A and B.

D. Atomic weights of elements are not always whole numbers.

Answer: A

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9. Which of the following reactions involves the smelting process ?

A. $ZnCO_3 \rightarrow ZnO + CO_2$

B. $Fe_2O_3 + 3C \rightarrow 2Fe + 3CO$

C. $2PbS + 3O_2 \rightarrow 2PbO + 2SO_2$

D. $Al_2O_3.2H_2 + O \rightarrow Al_2O_3 + 2H_2O$

Answer: B

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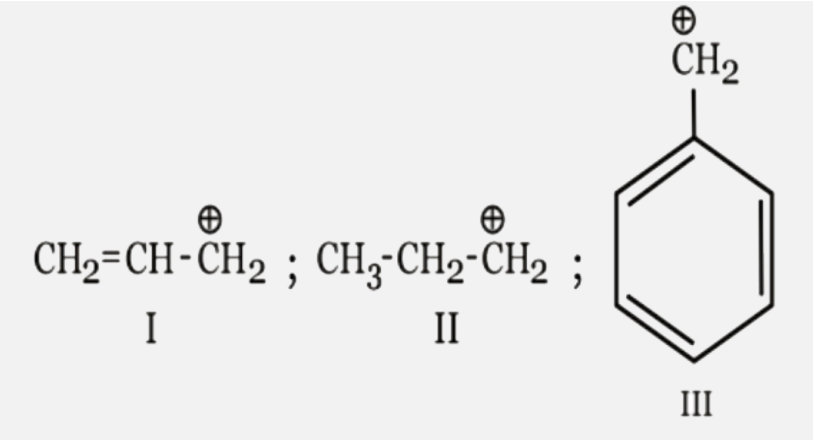
10. Correct stability order of the following cations is



A. $I > II > III$

B. $III > I > II$

C. $III > II > I$

D. $II > III > I$

Answer: B

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11. Choose the stable oxidation states of cerium (Ce).

A. $+1$ and $+2$

B. $+3$ and $+4$

C. $+2$ and $+3$

D. $+2$ and $+7$

Answer: B

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12. The activation energies of two reactions are E_{a1} and E_{a2} with $E_{a1} > E_{a2}$. If the temperature of the reacting systems is increased from T to T', which of the following is correct?

A. $\frac{k1'}{k_1} = \frac{k'_2}{k_2}$

B. $\frac{k'_1}{k_1} < 2\frac{k'_2}{k_2}$

C. $\frac{k'_1}{k_1} > \frac{k'_2}{k_2}$

D. $\frac{k'_1}{k_1} < \frac{k'_2}{k_2}$

Answer: C

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13. What is the main reactant in the prepartion of benzaldehyde by Etard's reaction?

A. Toluene

B. Ethyl benzene

C. Benzoyl chloride

D. Sodium benzoate

Answer: A

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14. Photochemical smog is formed by :

A. NO

B. NO_2

C. $CH_3 - \underset{\underset{O}{||}}{C}OO - NO_2$

D. $CH_2 = CH - CH = O$

Answer: B

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15. निम्नांकित सारणी में बहुलक वर्ग कौन सा है

वर्ग	0–10	10–20	20–30	30–40
बारम्बारता	12	15	13	10

A. Co - polymer

B. Cross - linked polymer

C. Condensation polymer

D. Homopolymers

Answer: A

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16. Which of the following statements is false about covalent bonds?

A. The electrons are shared between atoms to get stable electronic arrangement.

B. The bonds are non - directional.

C. The strength of the bond depends upon the extent of overlapping

D. The bond may or not be polar

Answer: B

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17. The IP_1, IP_2, IP_3, IP_4 and IP_5 of an element are $7.1, 14.3, 34.5, 46.8, 162.2V$ respectively. The element is likely to be -

A. Na

B. Si

C. F

D. Ca

Answer: B

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18. Which of the following compounds does give N_2 on heating ?

A. NH_4NO_2

B. NH_4NO_3

C. NaN_3

D. Both (A) and (B)

Answer: D

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19. 1 gram of hydrated oxalic acid $\left[(COOH)_2.2H_2O\right]$ undergoes combustion it produces 2.2 kcal of heat. What will be its enthalpy of combustion (ΔH_c)?

A. $-2.2kcal$

B. $-126kcal$

C. $-277.3kcal$

D. $-423kcal$

Answer: C

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20. The reaction of zinc with dilute and concentrated nitric acid, respectively, produce

A. NO and N_2O

B. NO_2 and N_2O

C. N_2O and NO_2

D. NO_2 and NO

Answer: C

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21. Hydrogen peroxide acts both as an oxidising and as a reducing agent depending upon the nature of the reacting species. In which of the following cases H_2O_2 acts as a reducing agent in acid medium ?

A. KI

B. $Cr_2O_7^{2-}$

C. SO_3^{2-}

D. MnO_4^-

Answer: D

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22. Which of the following species has the same hybridization as C in $CH_2 = CH_2$?

A. CO_3^{2-}

B. XeF_4

C. PCl_3

D. I_3^-

Answer: A

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23. The enthalpy of neutralization of NH_4OH and CH_3COOH is $-10.5\,\text{kcal mol}^{-1}$ and enthalpy of neutralisation of NH_4OH with a strong acid is $-11.7\,\text{kcal mol}^{-1}$. The enthalpy of ionization of CH_3COOH will be

A. $4.0\,\text{kcal mol}^{-1}$

B. $3.0\,\text{kcal mol}^{-1}$

C. $1.2\,\text{kcal mol}^{-1}$

D. $3.2\,\text{kcal mol}^{-1}$

Answer: C

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24. Beryllium and aluminimum exhibit many properties which are similar . But, the two elements differ in

A. exhibiting maximum covalency in compound

B. exhibiting amphoteric nature in their oxides

C. forming covalent halides

D. forming polymeric hydrides

Answer: A

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25. A solution of urea (mol. Mass $60gmol^{-1}$) boils of $100.18^{\circ}C$ at one one atmospheric pressure. If k_f and K_b for water are 1.86 and $0.512Kkgmol^{-1}$ respectively, the above solution will freeze at:

A. $0.654^{\circ}C$

B. $-0.654^{\circ}C$

C. $6.54^{\circ}C$

D. $-6.54^{\circ}C$

Answer: B

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26. Two complexes $\left[Cr(H_2O_6)_6\right]Cl_3$ and $\left[Cr(NH_3)_6\right]Cl_3$ (B) are violet and yellow coloured, respectively. The incorrect statement regarding them is :

A. Both are paramagnetic with three unpaired electrons

B. Δ_0 value of (A) is less than that of (B)

C. Δ_0 values of (A) and (B) are calculated from the energies violet and yellow light, respectively.

D. Both absorb energies corresponding to their complementary colors.

Answer: C

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27. Which one among the following is the mild oxdizing agent?

A. CrO_2Cl_2

B. $K_2Cr_2O_7$

C. $KMnO_4$

D. HNO_3

Answer: A

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28. Calculate the ionisation energy of sodium in $\mathrm{kJ\,mol^{-1}}$ if. Electromagnetic radiationo f wavelength 242 nm is just sufficient to ionise the sodium atom.

A. 4.946×10^2

B. 4.946×10^3

C. 4.946×10^4

D. 4.946×10^5

Answer: A

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29. Sodium crystallises in bcc arrangement with the interfacial separation between the atoms at the edge length of 53 pm. The density of the solid is

A. 1.23 g/cc

B. 485 g/cc

C. 4.85 g/cc

D. 123 g/cc

Answer: A

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30. A detergent $\left(C_{12}H_{25}SO^{4^-}\ Na^+\right)$ solution becomes colloidal sol at a concentration of 10^{-3}M . On an average 10^{13} colloidal partcles are present in $1mm^3$. What is the average number of ions which are contained by one colloidal particle (micelle)?

A. 6×10^7

B. 10

C. 60

D. None of these

Answer: C

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31. Which one of the following compounds is a peroxide?

A. KO_2

B. BaO_2

C. MnO_2

D. NO_2

Answer: B

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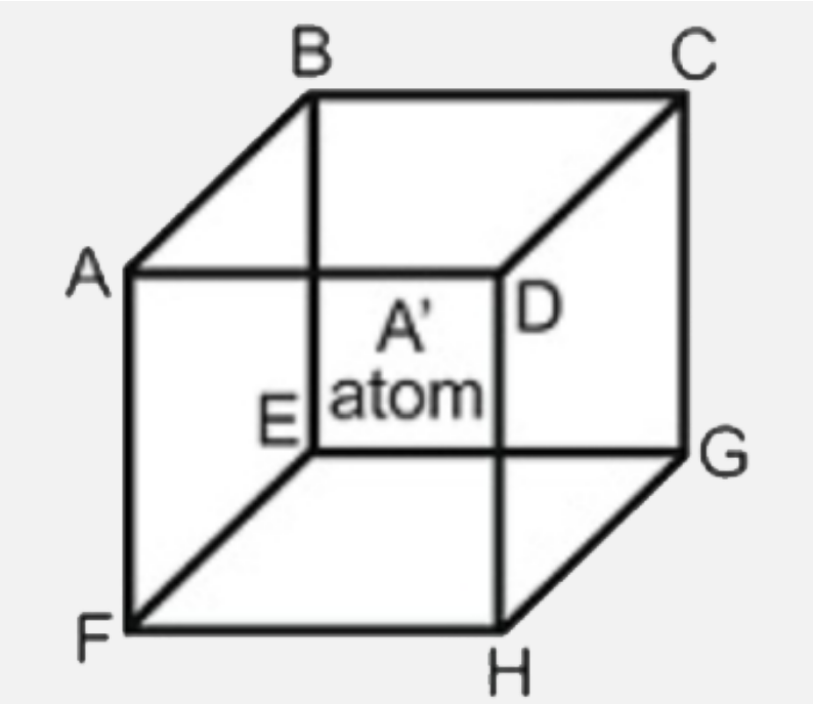
32. The three distances AB, AC and AA' in the given BCC lattice are :



A. $a, \sqrt{2}a, \frac{\sqrt{3}a}{2}$

B. $a, \frac{\sqrt{3}a}{2}, \sqrt{2}a$

C. $\frac{\sqrt{3}a}{2}, \sqrt{2}a$

D. $a, \frac{a}{\sqrt{2}}, \frac{\sqrt{3}a}{2}$

Answer: A

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33. Isoelectric point is defined as the pH at which:

A. An amino acid becomes acidic

B. An amino acid becomes basic.

C. Zwitter ion has net positive charge.

D. Zwitter ion has net zero charge.

Answer: D

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34. The maximum number of electrons that can exists in the orbital for which n = 3., 1 = 1 and m = -1 is :

A. 10

B. 14

C. 2

D. 6

Answer: C

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35. What will be the product when an organic compound not containing any ring or tripple bond having molecular formula C_4H_5Cl undergo polymerisation?

A. Neoprene

B. Natural rubber

C. Buna - S

D. Buna - N

Answer: A

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36. $CH_3CH = CH - CH = CH - CH_2CHOHCH_3$

How many isomers (geometrical and optical) are possible for the above - mentioned compound?

A. 2

B. 4

C. 6

D. 8

Answer: D

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37. The rms speed of N_2 molecules in a gas in u. If the temperature is doubled and the nitrogen molecules dissociate into nitrogen atom, the rms speed becomes

A. 2u

B. 4u

C. 14u

D. $\sqrt{2}u$

Answer: A

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38. Which one of the following orders presents the correct sequence of the increasing basic nature of the given oxides?

A. $K_2O < Na_2O < Al_2O_3 < MgO$

B. $Al_2O_3 < MgO < Na_2O < K_2O$

C. $MgO < K_2O < Al_2O_3 < Na_2O$

D. $MgO < K_2O < Na_2O < Al_2O_3$

Answer: B

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39. The correct order of thermal stability of hydrides of group 15 is

A. $PH_3 > PH_3 > AsH_3$

B. $PH_3 > NH_3 > AsH_3$

C. $NH_3 > AsH_3 > PH_3$

D. $AsH_3 > PH_3 > NH_3$

Answer: A

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40. Carbinol is

A. C_2H_5OH

B. CH_3OH

C. $(CH_3)_2CHOH$

D. $CH_3CH_3CH(OH)(CH_3$

Answer: B

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41. The order of the gaseous reaction $A(g) \rightarrow 2B(g) + C(g)$ is found to be one at the intial pressure $P_0 = 90$ torr. The total pressure after ten minutes is found to be 180 torr. Find the value of the rate constant?

A. $1.15 \times 10^{-3} s^{-1}$

B. $2.30 \times 10^{-3} s^{-1}$

C. $3.45 \times 10^{-3} s^{-1}$

D. $4.60 \times 10^{-3} s^{-1}$

Answer: A

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42. The correct decreasing order for acid strength is-

A.

$$NO_2CH_2COOH > FCH_2COOH > CNCH_2COOH > ClCH_2CO$$

B.

$$NO_2CH_2COOH > NCCH_2COOH > FCH_2COOH > ClCH_2CO$$

C.

$$CNCH_2COOH > O_2NCH_2COOH > FCH_2COOH > ClCH_2CO$$

D.

$$FCH_2COOH > NCCH_2COOH > NO_2CH_2COOH > ClCH_2CO$$

Answer: B

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43. The bad smelling substance formed by the action of alcoholic caustic potash on chloroform and aniline is .

A. Nitrobenzene

B. Phenyl isocyanide

C. Phenyl cyanide

D. Phenyl isocyanate

Answer: B

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44. Which one of the following is not a surfactant?

A. $CH_3 - (CH_2)_{15} - N^+(CH_3)_3Br^-$

B. $CH_3 - (CH_2)_{14} - CH_2NH_2$

C. $CH_3 - (CH_2)_{16} - CH_2OSO_2^- Na^+$

D. $OHC - (CH_2)_{14} - CH_2 - COO^- Na^+$

Answer: B

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45. Determine the solubility of silver chromate at 298 K given its K_{sp} value is 1.1×10^{-12}?

A. 6.5×10^{-5}

B. 2.4×10^{-2}

C. 3.6×10^{-3}

D. 8.9×10^{-4}

Answer: A

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