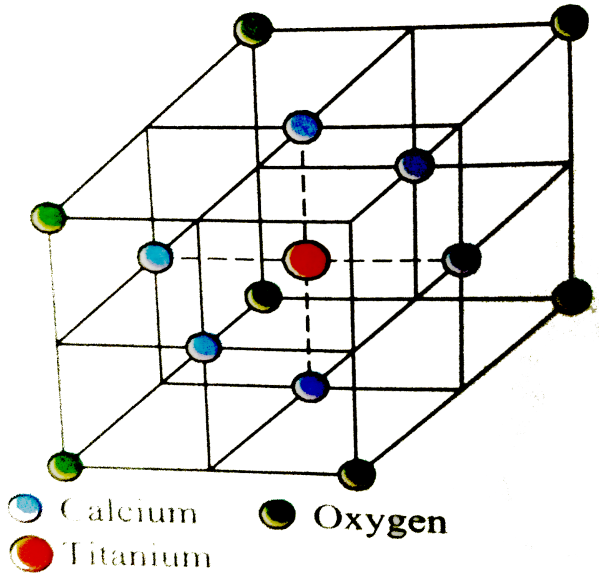
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 104

Chemistry

1. Perovaskite, a mineral containing calcium, oxygen & titanium crystallizes in the given unit cell



The oxidation number of titanium in the perovskite is

A. $+2$

B. $+3$

C. $+4$

D. $+1$

Answer: C

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2. Least stable hydride is

A. Stannane

B. Silane

C. Plumbane

D. Germane

Answer: C

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3. Which of the following combination does not liberated NH_3 gas?

A. Heating of NH_4ClO_4

B. Heating of NH_4Cl

C. $(NJ_4)_2CO_3 + NaOH$

D. $Li_3N + H_2O$

Answer: A

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4. 14.2 g Na_2SO_4 is present in 10^2 kg water. Its concentration in ppm is

A. 10 ppm

B. 100 ppm

C. 142 ppm

D. 14.2 ppm

Answer: C

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5. Metallic magnesium is prepared by

A. Reduction of MgO with cock

B. Electrolysis of an aqueous solution of $MgCl_2$

C. Electrolysis of molten $MgCl_2$

D. Displacement of magnesium by iron from $MgCl_2$ solution

Answer: C

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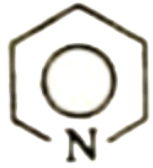
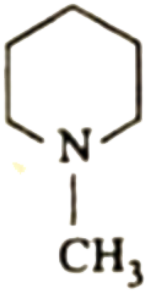
6. Arrange basicity of given compounds in decreasing order

(1) 

(3) 

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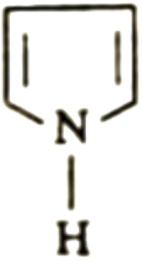
(4) 

A. 2,1,4,3

B. 1,2,3,4

C. 3,2,1,4

D. 2,3,1,4

Answer: D

7. The ratio a/b (the terms used in van der Waals' equation) has the unit .

A. atm litre mol^{-1}

B. atm $dm^3 mol^{-1}$

C. dyne cm mol^{-1}

D. All of these

Answer: D

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8. In the reaction,

$CH_3 - CH_2 - CBr_3 \xrightarrow{\text{Ag Powder / } \Delta} (X)$. The product x is :

A. Propyne

B. $CH_3 - C \equiv C - Ag$

C. 3 - Hexyne

D. 3 - Hexena

Answer: C

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9. $SO_2 + NO + H_2O \rightarrow X +$ a dibasic acid

$X \xrightarrow{NaNH_2} Y + H_2O$

In the above sequence, X and Y are respectively

A. $NOHSO_4, NaHSO_4$

B. $NO_2, NaNO_2$

C. N_2O, NaN_3

D. N_2O, Na_2N

Answer: C

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10. The de-Broglie wavelength of a neutron at $1327^\circ C$ is λ .

What will be its wavelength at $127^\circ C$?

A. λ

B. 2λ

C. $\frac{\lambda}{2}$

D. 8λ

Answer: B

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11. Which of the following molecules involves the formation of $d\pi - p\pi$ bonding ?

A. Trimethyl amine

B. Carbon monoxide

C. Trisilyl amine

D. C_3O_2

Answer: C

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12. When ethyl iodide and n-propyl iodide are allowed to react with sodium in the presence of dry ether, the number of alkanes that would be produced is

A. only one

B. two

C. three

D. four

Answer: C

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13. Which of the following halides cannot be hydrolysed at room temperature?

(I) TeF_6

(II) SF_6

(III) NCl_3

(IV) NF_3

Choose the correct code:

A. III and IV

B. I,II and III

C. I, II and IV

D. II and IV

Answer: D

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14. The equilibrium constants for the reaction $Br_2 \Leftrightarrow 2Br$ at 500 K and 700 K are 1×10^{-10} and 1×10^{-5} respectively. The reaction is:

A. endothermic

B. exothermic

C. fast

D. slow

Answer: A

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15. Glycol forms diethylene glycol on heating with

A. Anhy, $ZnCl_2$

B. Conc. H_2SO_4

C. Anhy. $AlCl_3$

D. H_3PO_4

Answer: D

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

A. $+2,\ +5,\ +1, 0$

B. $-1,\ +1, 0+1$

C. $-2,\ -5,\ -1, 0$

D. $+5,\ +7,\ -1, 0$

Answer: D

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17. Which of the following complex will give white precipitate with barium chloride solution –

A. $\left[Cr(NH_3)_5Cl\right]SO_4$

B. $[Cr(NH_3)SO_4]Cl$

C. $\left[Co(NH_3)_6\right]Br_3$

D. None of these

Answer: A

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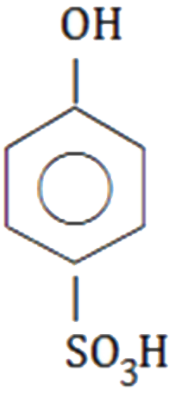
18. In the given reaction

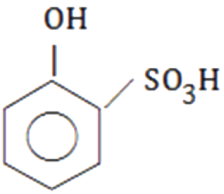
$$C_6H_5-OH \xrightarrow{H_2SO_4} \underset{\text{as major product}}{X} \xrightarrow[\Delta]{(i)\,NaOH} (Y)$$

$'Y'$ is

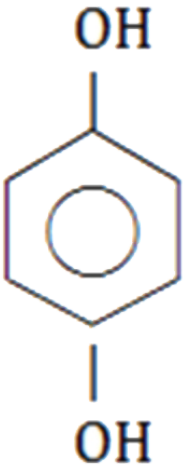
A.



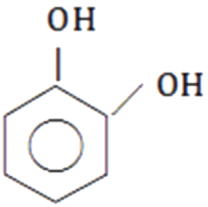
B.



C.



D.



Answer: C

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19. The enthalpy change for a reaction does not depend upon:

A. use of different reactants for the same products

B. the nature of intermediate reactions steps

C. the differences in the initial and final temperature of involved substances

D. The physical state of reactants and products

Answer: B

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20. How long a current of 3 ampere has to be passed through a solution of silver nitrate to coat a metal. Surface of $80cm^2$ with a 0.005 mm thick layer? Density of Ag is $10.5gcm^{-3}$. At wt. $Ag = 108.0u$

A. 125.09 sec

B. 1.251 sec

C. 12.51 sec

D. 12.61 sec

Answer: A

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21. In which of the following molecular species both σ-dative and π- dative bonds are present?

A. BF_4^-

B. Be_2Cl_4

C. NH_4^+

D. $[BeF_4]^{2-}$

Answer: B

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22. Which of the following attraction is strongest?

A. 

B. 

C. 

D. 

Answer: D

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23. A metal gets coated with a green basic carbonate when exposed to atmosphere. Metal is

A. Nickel

B. Chromium

C. Copper

D. Zinc

Answer: C

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24. Dissolution of a solute is an exothermic process if

A. hydration energy > Lattice energy

B. hydration energy < Lattice energy

C. hydration energy = Lattice energy

D. None of the above

Answer: A

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25. In the given reaction

$$CH_3 - CHO \xrightarrow{2HCHO\,/\,dil.\,Na_2CO_3} (X),$$ 'X' will be

A. $HOCH_2 - CH_2 - CHO$

B. $HOCH_2 - \underset{\displaystyle CH_2OH}{\overset{\displaystyle |}{C}} H - CHO$

C. $HOCH_2 - \underset{\displaystyle CH_2OH}{\overset{\displaystyle CH_2OH}{\overset{\displaystyle |}{\underset{\displaystyle |}{C}}}} - CHO$

D. $HOCH_2 - \underset{\displaystyle CH_2OH}{\overset{\displaystyle CH_2OH}{\overset{\displaystyle |}{\underset{\displaystyle |}{C}}}} - CH_2OH$

Answer: C

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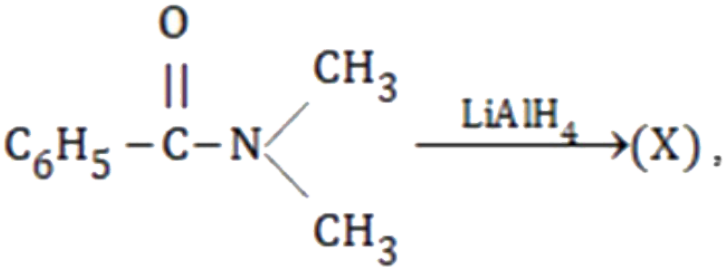
26. In the given reaction

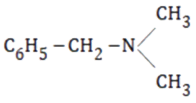


'X' will be

A. $C_6H_5 - CH_2OH$

B. C_6H_5COOH

C. $C_6H_5CONH_2$

D. 

Answer: D

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27. Calculate the heat required to make 6.4kg of CaC_2 from $CaO(s)$ and $C(s)$ from the reaction that

$\Delta H_f^\circ(CaO) = -151.6kcal$

$\Delta H_f^\circ(CaC_2) = -14.2kcal$

$\Delta H_f^\circ(CO) = -26.4kcal.$

A. $5624kcal$

B. $86.24 \times 10^3 kcal$

C. $1.11 \times 10^4 kcal$

D. $1100kcal$

Answer: C

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28. In chemical reaction of potassium ferrocyanide and hydrogen peroxide in the presence of dil.H_2SO_4

A. Ferrocyanide gets reduced to ferricyanide

B. Ferrocyanide gets oxidised

C. Iron does not change its oxidation state

D. Hydrogen peroxide is oxidised

Answer: B

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29. Red hot carbon will remove oxygen from the oxides XO and Yo but not from ZO. Y will remove oxygen from XO.

Use this evidence to deduce the order of activity of the three metals X, Y, and Z, putting the most reactive first.

A. X, Y, Z

B. Z,Y,X

C. Y,X,Z

D. Z,X,Y

Answer: B

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30. Calcium lactate is a salt of weak acid and represented as $Ca(LaC)_2$. A saturated solution of $Ca(LaC)_2$ contains 0.13 mole of salt in 0.50 litre solution. The pOH of this is 5.60.

Assuming complete dissociation os salt, calculate K_a of lactic acid.

A. 824×10^{-4}

B. 8.24×10^{-4}

C. 82.4×10^{-4}

D. 8.24×10^{4}

Answer: B

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31. Which of these compounds will not form tribromo derivative ?

A. Anisole

B. Phenol

C. O-cresol

D. Salicylic acid

Answer: C

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32. The reagent(s) used in the preparation of aspirin from salicylic acid is/are

A. $SOCl_2$

B. CH_3COOH, HCl

C. $CHCl_2, AlCl_3$

D. $(CH_3CO)_2O, H^+$

Answer: D

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33. Lyophilic sols are more stable than lyophobic sols because :

A. the colloidal particles have positive charge

B. the colloidal particles have no charge

C. the colloidal particles are more solvated

D. there are strong electrostatic repulsions between the negatively charged colloidal particles

Answer: C

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34. The rate constant K_1 of a reaction is found to be double that of rate constant K_2 of another reaction. The relationship between corresponding activation energies of the two reaction at same temperature $(E_1 \text{and} E_2)$ can be represented as:

A. $E_1 > E_2$

B. $E_1 < E_2$

C. $E_1 = E_2$

D. None of these

Answer: D

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35. Exess of KI reacts with $CuSO_4$ solution and then $Na_2S_2O_3$ solution is added to it. Which of the following statement is incorrect for this reaction ?

A. Evolved I_2 is reduced

B. CuI_2 is formed

C. $Na_2S_2O_3$ is oxidised

D. Cu_2I_2 is formed

Answer: B

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36. When an ideal binary solution is in equilibrium with its vapour, molar ratio of the two components in the solution

and in the vapour phase is :

A. same

B. different

C. may or may not be same depending upon volatile nature of the tow components

D. none of these

Answer: C

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37. What is the coordination number of Ni in nickel DMG complex?

A. 2

B. 3

C. 6

D. 4

Answer: D

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38. Which of the following set of statements regarding the S_N1 reaction shown by alkyl halide is correct here?

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

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

3. The added nucleophile plays no kinetic role in S_N1

reaction

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

A. 1,2

B. 2,3

C. 1,3

D. 1,2,3

Answer: D

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39. 10 ml gaseous hydrocarbon was burnt completely in 80 ml of O_2 at NTP. The remaining gas occupied 70 ml at NTP.

This volume became 50 ml on treatment with KOH solution.

The empirical formula of the hydrocarbon is :

A. C_2H_4

B. CH_4

C. C_2H_2

D. C_2H_6

Answer: A

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40. The potential energy of the electron present in the ground state of Li^{2+} ion is represented by :

A. $+\frac{3e^2}{4\pi\varepsilon_0 r}$

B. $-\frac{3e}{4\pi\varepsilon_0 r}$

C. $-\frac{3e^2}{4\pi\varepsilon_0 r^2}$

D. $-\frac{3e^2}{4\pi\varepsilon_0 r}$

Answer: D

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41. In the given sequence

$$HOCH_2 - CHOH - CH_2OH \xrightarrow{Br_2 / H_2O} A + B \xrightarrow{dil.NaOH} (X)$$

,

X is

A. Glyceraldehyde

B. Dihydroxyacetone

C. Fructose

D. Glucose

Answer: C

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42. The Cr metal (atomic weight 52) crystallises BBC structure. The unit cell edge length is 2.88 Å. The density of Cr is $7.2gml^{-1}$. The number of atom is 52 g of Cr is

A. 3×10^{23}

B. 12×10^{23}

C. 6×10^{23}

D. 9×10^{23}

Answer: C

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43. The correct order of strength of $H-$ bond in the following compound :

A. $H_2O > H_2O_2 > HF > H_2S$

B. $HF > H_2O_2 > H_2O > H_2S$

C. $HF > H_2O > H_2S > H_2O_2$

D. $HF > H_2O > H_2O_2 > H_2S$

Answer: B

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44. Arrange given diabasic acids in decreasing order of acidic strength 1. Oxalic acid 2. Adipic acid 3. Malonic acid 4. Succinic acid

A. 1,3,4,2

B. 1,4,3,2

C. 3,4,2,1

D. 2,3,1,4

Answer: A

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45. In the given reaction

$$RCN \xrightarrow[(ii)\, H_2O/H^+]{(i)\, RMgX} (X),$$ (X) will be

A. Aldehyde

B. Ketone

C. Tertiary alcohol

D. Secondary alcohol

Answer: B

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