

DHE-2620396 *Pohel*

उत्तराखण्ड विद्यालयी शिक्षा परिषद्, रामनगर (नैनीताल)

इण्टरमीडिएट परीक्षा
(उत्तराखण्ड)

'अ' ~~100~~
12 पन्ने

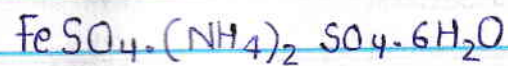
पत्रिका के किसी भी भाग में अपना

Answer-1

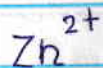
(क)

Equal to that of sucrose solution.

(ख)



(ग)



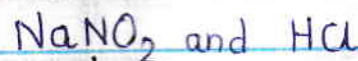
(घ)

1-Bromo-2-methyl-butane

(ङ)



(च)



(छ)

(ज)

Benzene

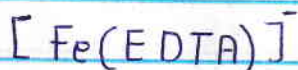
(झ)

Both A & R are correct R is correct explanation of A

(ज)

A is correct but R is incorrect

Answer-2



The coordination number of Fe is 6.

Answer-3

The potential difference between the two electrodes of a galvanic cell is called cell potential or emf of a cell.

Answer-4

- Starch
- Cellulose

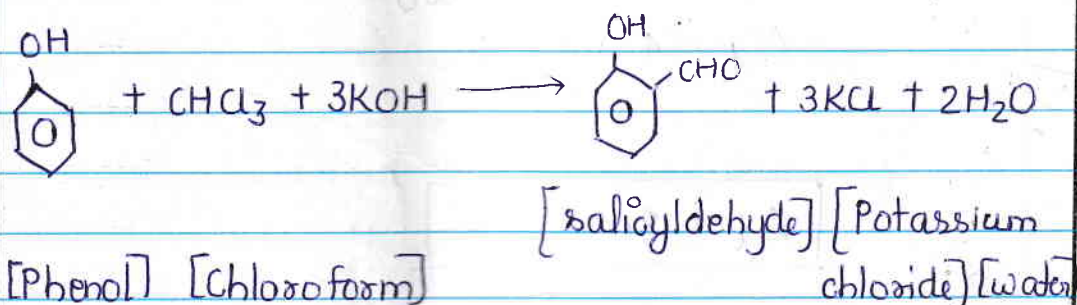
Answer-5

The solution which obey Raoult's Law over the entire range of concentration are known as ideal solution

Answer-6 (OR)

(a)

Reimer-Tiemann reaction



(b)

Williamson synthesis





Chloro
methane

[sodium
methoxide]

[di methyl
ether]

[sodium
chloride]

Answer-7

$$\Delta_t = \frac{4}{9} \Delta_0$$

$$\Delta_0 = 18000 \text{ cm}^{-1}$$

$$\Delta_t = \frac{4}{9} \times 18000$$

$$\Delta_t = 4 \times \frac{18000}{9}$$

$$\boxed{\Delta_t = 8000 \text{ cm}^{-1}}$$

Answer-8 (OR)

given the classification into hormones and vitamins-

Hormones

Thyroxine

Progesterone

~~Pyridoxine~~

Vitamins

Pyridoxine

Ascorbic acid.

Answer-9

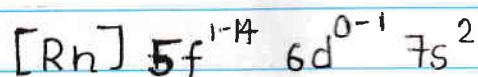
(क)

Ore of manganese $\rightarrow$ Pyrolusite (MnO_2)

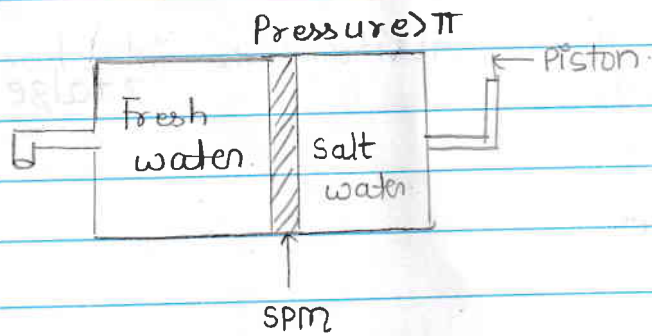
Ore of chromium $\rightarrow$ Chromite ($FeCr_2O_4$)

(ख)

General electronic configuration of actinoids is-



Answer-10



(क)

Process - Reverse osmosis

(ख)

To the fresh water container

(ग)

Cellulose acetate membrane

(घ)

→ It is used as a water purifier of sea water.

दि

Answer-11

(क)

Aromatic 1^o amine can be prepared by Gabriel phthalimide synthesis $\rightarrow$ False

(ख)

Benzene sulphonyl chloride is known as Hinsberg's reagent $\rightarrow$ True

(ग)

pK_b of aniline is more than that of methylamine $\rightarrow$ True

(घ)

Aniline undergoes Friedel-Crafts reaction $\rightarrow$ False.

Answer-12

Kohlrausch law -

Kohlrausch law can be defined as the molar conductivity at infinite dilution is equal to the sum of their

ionic conductivity of all its cations and ions. in the electrolytic solution

$$\Lambda_{\text{NaCl}}^{\infty} = \Lambda_{\text{Na}^+}^{\infty} + \Lambda_{\text{Cl}^-}^{\infty}$$

Application

→ It is used to calculate the molar conductivity at infinite dilution

→ It is used to calculate the conductivity of strong and weak electrolytes

→ It is used to calculate the ionic conductivity.

Answer-13

(i) → ③ Wurtz-fitting reaction.

(ii) → ④ Fitting reaction.

(iii) → ② Finkelstein reaction.

(iv) → ① Swarts reaction.

Answer - 16

(क)

given.

$$W_2 = 18 \text{ g}$$

$$W_1 = 1 \text{ kg}$$

$$K_b = 0.52 \text{ K kg mol}^{-1}$$

$$\text{Molar mass of glucose} = 180 \text{ g}$$

$$\Delta T_b = \frac{K_b \times 1000 \times W_2}{W_1 \times M_2}$$

$$\text{moles of glucose} = \frac{18}{180} = 0.1 \text{ mol}$$

$$\text{So, molality } m = \frac{0.1}{1} = \frac{\text{no. of moles of glucose}}{\text{mass of solvent (kg)}}$$

$$m = 0.1 \text{ mol kg}^{-1}$$

Elevation of boiling point =

$$\Delta T_b = K_b \times m$$

$$= 0.52 \times 0.1$$

$$= 0.052 \text{ Kelvin}$$

Boiling point

$$T_b = 373.15 + 0.052$$

$$= 373.202 \text{ Kelvin}$$

(२०)

Cryoscopic constant

It is defined as decrease in freezing point of solvent when 1 mole of non-volatile dissolve in 1Kg of solvent.

$$\Delta T_f = K_f \times m$$

Answer - 17 (OR)

(१६)

Nucleic acid are those which are present in the nuclei of all living cell in form of nucleoproteins.

Biological function -

→ Nucleic acid transfer genetic information from 1 generation to another generation.

→ Nucleic acid is used as the protein synthesis.

(२०)

Denaturation of proteins

When 2° and 3° structure of protein are destroyed but 1°

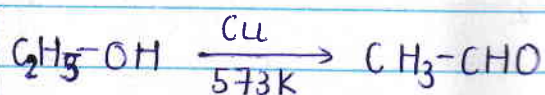
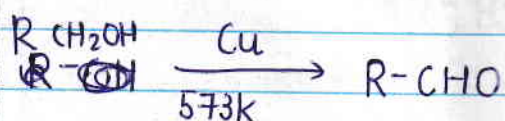
structure of protein remain unaltered.
In this globular protein (soluble in water) are converted into fibrous protein (insoluble in water) and their biological activity is lost.

When the protein are structurally disturbed and their biological function is inactive.

Answer-18 (OR)

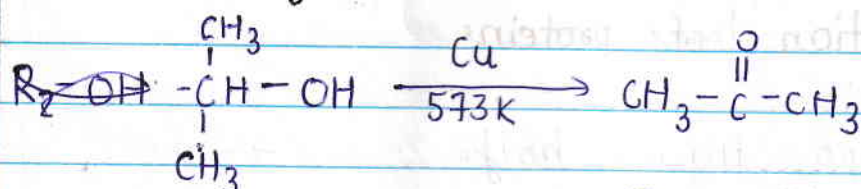
On the passing over given alcohol over copper at 573K.

(i) Primary alcohol



When primary alcohol react in the presence of copper at 573K then it gives Ethanal (aldehyde).

(ii) Secondary alcohol.

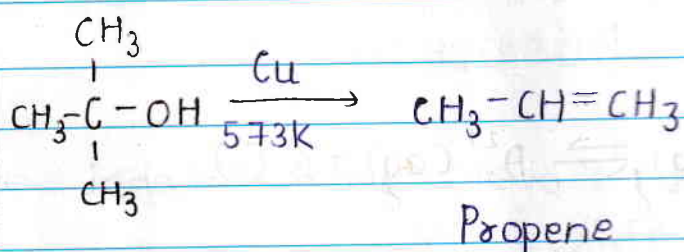


[Ketone]

when secondary alcohol react in the presence of copper at 573K then it gives ketone.

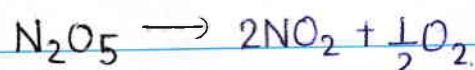
(iii) Tertiary alcohol-

When tertiary alcohol react in the presence of Cu at 573K then it form Alkene.



Propene

Answer-14



t(s)	$[\text{N}_2\text{O}_5]$
0	1.6×10^{-2}
300	0.8×10^{-2}
600	0.4×10^{-2}

300 sec - concentration becomes the half

600 sec - Again half

Half life constant (300 sec).

Since, half life is constant reaction is 1st order.

Answer -15

Given

$$K_c = 10$$



we know at equilibrium $E_{cell} = 0$

E

$$E_{cell}^{\circ} = \frac{0.0591}{n} \cdot \log K_c$$

$$E_{cell}^{\circ} = \frac{0.0591}{2} \cdot \log 10$$

$$E_{cell}^{\circ} = 0.0295 V$$

Answer-19

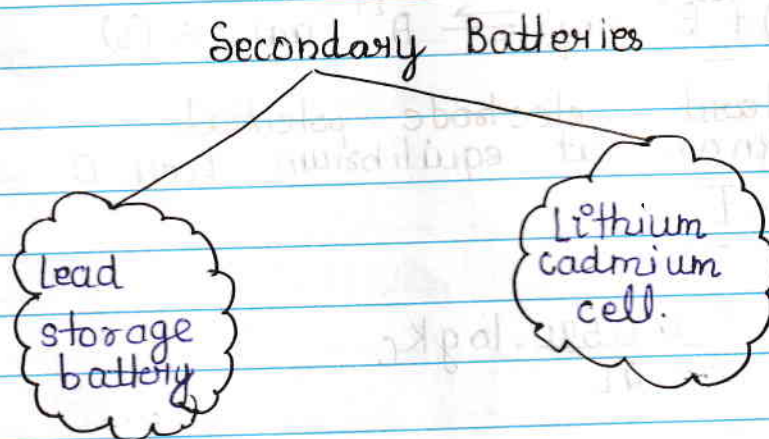
(क)

Secondary batteries-

Secondary batteries are those which can be used again and again.

Chemical reaction is reversible.

Secondary batteries are rechargeable.



Inventors are example.

(ख)

Cell constant-

The ratio of distance between the electrodes and Area of electrodes is called cell constant.

Cell constant is denoted by C_H^*

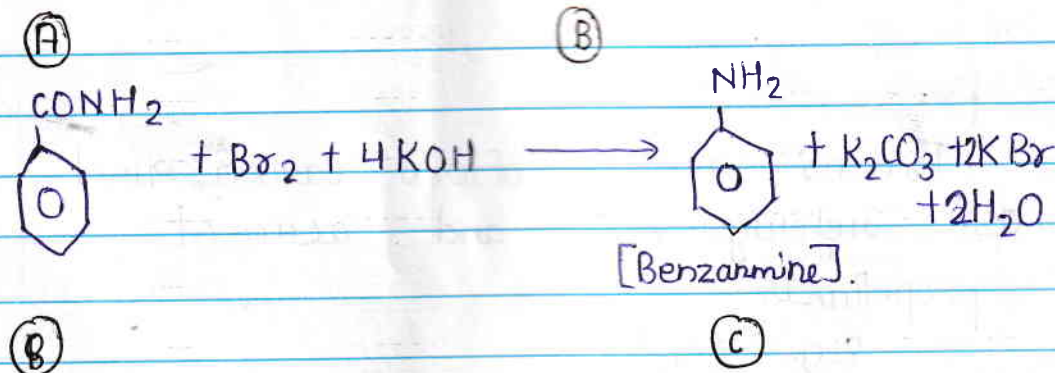
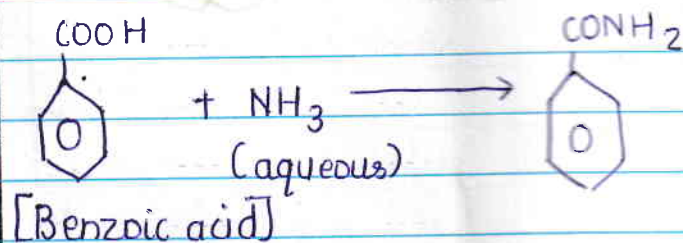
$$C_H^* = \frac{l}{A}$$

(AT)

Standard electrode potential

At 1 Molar concentration, 1 atm pressure at 273 K the potential difference generated between the metal and their ion is called standard electrode potential.

Answer - 20



A → Benzoic acid



B → Benzamide



C → Aniline, Benzaniline.



Answer - 21

(क)

Racemic mixture-

A Racemic mixture is an equimolar mixture of two enantiomers [D-L form] which is optically inactive because rotation cancel each other.

E.g Lactic acid.

(ख)

Freon

Freons are chlorofluoro carbon used as refrigerant and aerosol propellants.

E.g CCl_2F_2
[Freon-12].

(3)

Stereocentre

A stereo centre is an atom bonded to four different leading to optical isomerism

E.g. $\text{CH}_3\text{CH}(\text{OH})_2$

Answer-22

(4)

Homoleptic complex

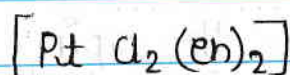
Those complex in which the central metal atom is bounded to only kind of ligand.



All ligands identical

Heteroleptic complex

Those complex in which the central atom is bounded to ~~one~~ more than one type of ligand is called Heteroleptic complex.



Ligands different

(ख)

Double salt

Double salt are those which completely lose their identity in aqueous solution.

E.g Mohr salt.
Potash alum.

They are generally found in solid state.

Complex

Complex are those which retain their identity in aqueous solution.

E.g $[\text{Fe}(\text{CN})_6]^{4-}$

They are generally found in solid as well as liquid.

(ग)

Inner orbital complex

In which the hybridisation is $d^2 sp^3$

in the spin is low spin.

uses

Used in $(n-1)d$ orbital for hybridisation

Outer orbital complex.

In which the hybridisation is $sp^3 d^2$

spin is high
High spin.

uses nd orbital for hybridisation

Answer-23 (OR)

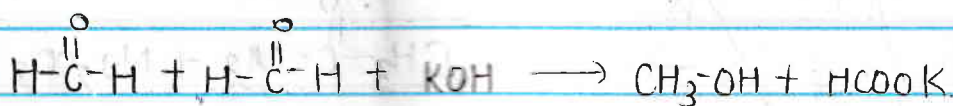
(क)

Aldehyde are more Reactive than ketones towards nucleophile because due to -

- ① Inductive effect
- ② Steric hindrance.

(ख)

Formaldehyde give cannizzaro reaction whereas acetaldehyde does not because acetaldehyde have α -hydrogen and for this Reaction α -hydrogen are not needed.



(ग)

The boiling point of aldehyde and ketone are lower than that of corresponding carboxylic acid because it have hydrogen bond with carbon of benzene while ketone and aldehyde does not Make hydrogen bond.

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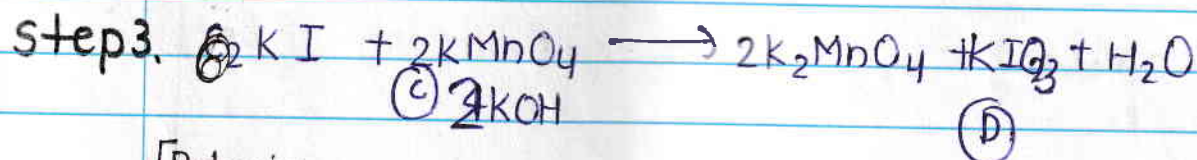
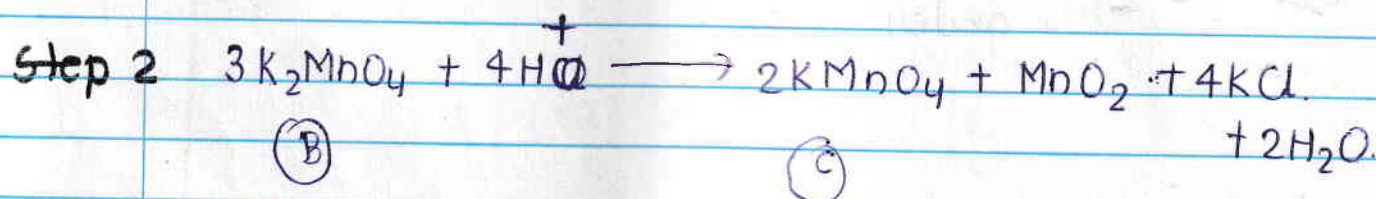
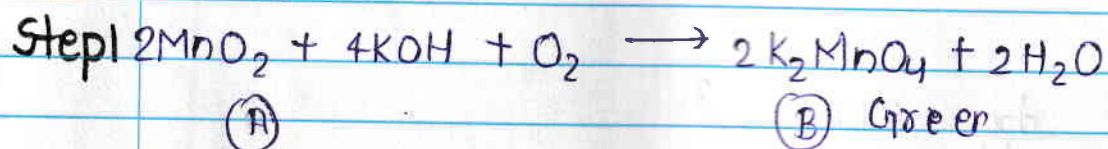
इण्टरमीडिएट परीक्षा
(उत्तराखण्ड)

'ब' 1

06 पन्ने

केन्द्र प्रमुख की मुद्रा केन्द्र व्यवस्थापक के हस्ताक्षर

Answer-24



[Potassium
iodide]

- A → Manganese dioxide (MnO_2)
- (B) Potassium manganate (K_2MnO_4)
- (C) Potassium permanganate (KMnO_4)
- (D) Potassium iodide (KIO_3)

Answer-25.

(क)

$$\frac{dx}{dt} = k[A]^1[B]^2$$

$$\text{order} = 1+2=3$$

(ख)

1st order.

(ग)

(i) Rate law

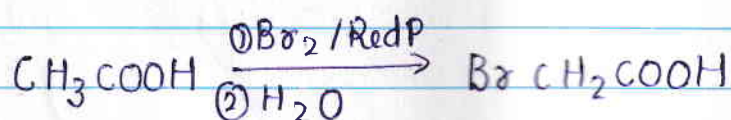
(ii) (d) $e^{\frac{-E_a}{RT}}$

(iii) The slowest step

(iv) → (b) Pseudo first order

Answer-26

(क)



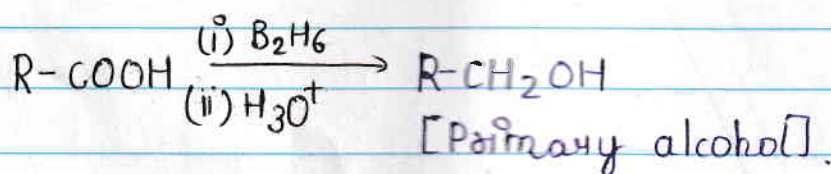
acetic acid

2Bromo ethanoic acid

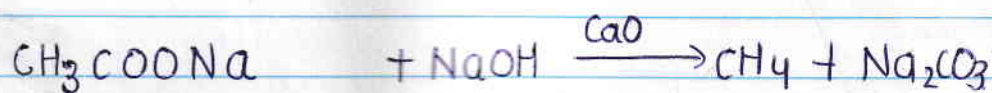
(ख)

Benzoic acid does not undergo Friedel-Crafts reaction because $-\text{COOH}$ is a strong deactivating group and meta directing group.

(ग)



(घ)



[sodium ethanoate]

[methane]