



परीक्षा का विषय

परीक्षा का माध्यम

Chemistry 2 2 0
स्टीकर तीर के निशान ↓ से मिलाकर लगाय

उत्तर पुस्तिका का सरल क्रमांक B-23

3063952

अंकों में परीक्षार्थी का रोल नम्बर

2 3 6 7 2 5 2 4 2



BOARD OF SECONDARY EDUCATION, BHOPAL

नीचे दिये गये उदाहरण अनुसार रोल नम्बर श्रे।

उदाहरणार्थ 1 1 2 4 3 9 5 6 8

एक एक दो चार तीन नौ पांच छ आठ

प्रश्न पत्र का सेट C

क :- परीक्षार्थी का कक्ष क्रमांक 18

ख :- परीक्षा का दिनांक 18-03-2023

परीक्षा का नाम एवं परीक्षा केंद्र क्रमांक की मुद्रा

H.S.S.

केंद्र क्र. 671003

पर्यवेक्षक का नाम एवं हस्ताक्षर : केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

निता शिखर सिंह
29.3.23
गर्ता 322

Shilhari

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

प्रमाणित किया जाता है कि होलो क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया तथा अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टि एवं अंकों का योग सही है।

निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाएं।

उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा : परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा

Manoj Prasad Patel
Biganwar Jee High School
V.No. M-8109399293

केवल परीक्षक द्वारा भरा जावे।

प्रश्न क्रमांक	पृष्ठ क्रमांक	प्राप्तांक (अंकों में)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		

कुल प्राप्तांक

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष एवं पर्यवेक्षक द्वारा भरा जावे
परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे

Oddy



Question no. → 1

Choose and write correct options :-

Answers

- (i) (b) RONA ✓
- (ii) (b) CCl_3COOH ✓
- (iii) (a) $\pi = \frac{nRT}{V}$ ✓
- (iv) (d) 2 ✓
- (v) (d) Ce ✓
- (vi) (c) +4 ✓
- (vii) (a) Finkelstein reaction ✓

Question no. → 2

- (i). Ethylene diamine tetra acetate
- (ii). → Ortho and Para nitro anisole.
- (iii) → more
- (iv). Riboflavin or lactoflavin
- (v) 55.56
- (vi) 0.00 Volt
- (vii) Green



Question no. → 3

Match the column :-

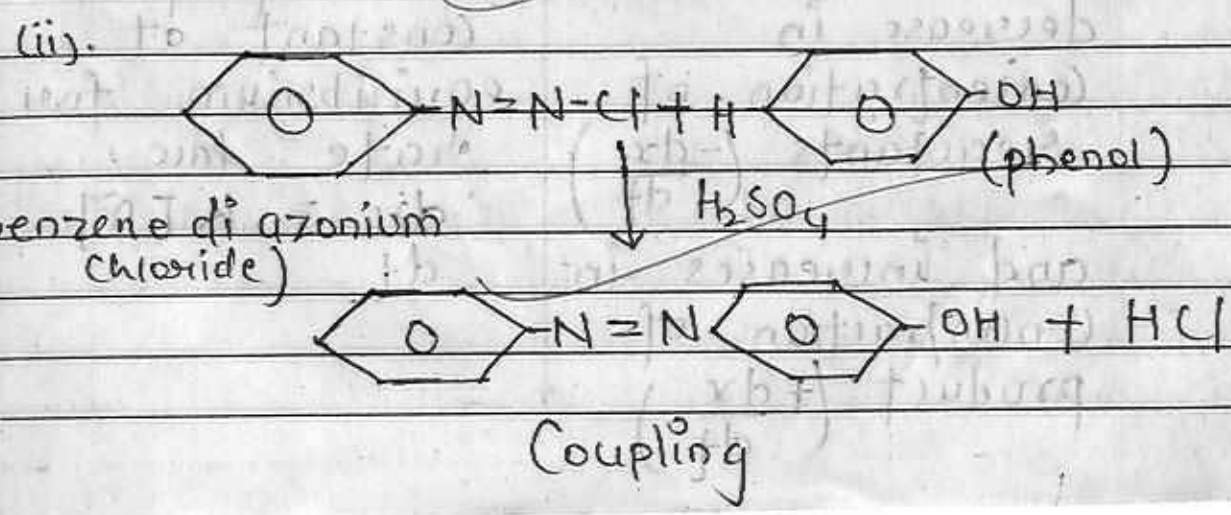
- (i) Hoffman bromide → Primary amines
- (ii) Milk Sugar → Lactose
- (iii) Sucrose → $C_{12}H_{22}O_{11}$
- (iv) Aldohexose → Glucose
- (v) Mn $M \rightarrow +7$
- (vi) Primary valence → Negative ions
- (vii) $R-O-R \rightarrow$ ether

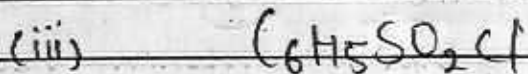
Question no. → 4

One word / Sentence :-

Answers :-

(i). Di chloro di phenyl tri chloro ethane.



(iv) α -amino acids

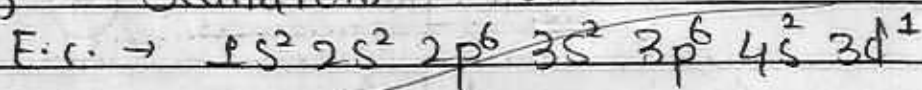
(v) $\lambda_m = k \times V$

or)

$$\lambda_m = \frac{k \times 1000}{M}$$

(vi) mole litre⁻¹ second⁻¹or) mol. l⁻¹ s⁻¹

(vii) Scandium = 21

Question no. \rightarrow (5) (OR)Rate of reactionRate constant

(a) Rate of reaction decrease in concentration of reactants $(-\frac{dx}{dt})$ and increases in concentration of product $(+\frac{dx}{dt})$

(a) It is proportionality constant at equilibrium for rate law.
 $\frac{dx}{dt} = k[A]$



(b) Unit of rate of reaction is mole litre⁻¹ sec⁻¹.

(b) Unit of rate constant is depend upon the order of reaction.

(c) It is affected by the radiation.

(c) It does not affected by the radiations.

Question no. → 6

(ii) $[Co(NH_3)_6]Cl_3$
→ Hexa ammine, Cobalt (III) Chloride

(iii) $K_2[Ni(CN)_4]$
→ ~~Tetra cyanide~~
Potassium tetra cyanido nickelate (II)

Question no. → 7

Coordination number :- The number of ligands which are attached to the central metal atom in coordination sphere of coordination compound is called coordination number.

6



पृ. क्र.

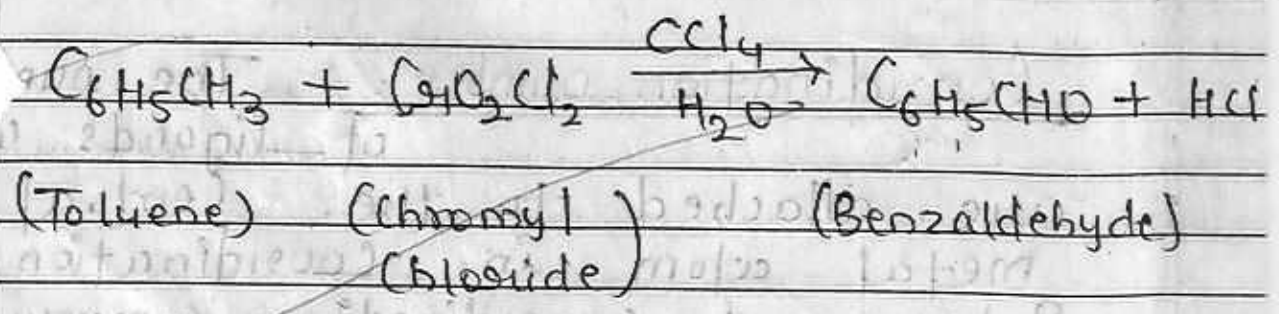
In other words, The total number of ligands attached to central metal atom are called Coordination number.

for example :- i) $K_2 [Fe (CN)_6]$
(Coordination number = Six)

ii) $K_4 [Ni (CN)_4]$
(Coordination number = four)

(III) Question no. → 8

Etard Reaction :- Toluene is react with Chromyl chloride in the presence of Carbon tetra chloride and then hydrolysed to form Benzaldehyde.



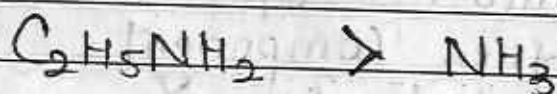


Question no. → (9) (OR)

Ethylamine is more basic than ammonia.

The nitrogen group (NH_2 group) is present in ethyl amine.

It contains lone pair of electrons in it and also have positive inductive effect. Due to +I effect of ethyl amine its basicity of electrons is increased. Thus, Ethyl amine is more basic than ammonia.



Question no. → (10)

Fibrous protein	Globular protein
It is linear thread structure like protein.	(a) It is circular or helical shaped protein.
It is insoluble in water.	(b) It is soluble in water.
It contains	(c) It contains other



only fibrous bond.

bond along with hydrogen bond.

→ for example :-

→ for example :-

(i) Keratin

(i) Fibrinogen

(ii) Myosin

(ii) Enzyme

Question no. → 11

Mole fraction :- Mole fraction is defined as the ratio of number of moles of one component to the total number of moles of all the component.

It is denoted by X.

mole fraction of Solvent = X_A

mole fraction of Solute = X_B

~~$$X_A = \frac{n_A}{n_A + n_B}$$~~

n_A = number of moles of solvent

n_B = number of moles of solute

$$X_B = \frac{n_B}{n_A + n_B}$$



$$X_A + X_B = 1$$

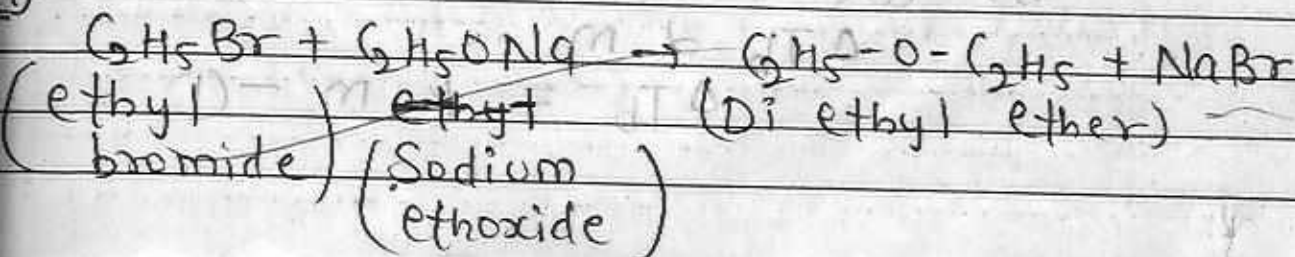
Question no. → (12)

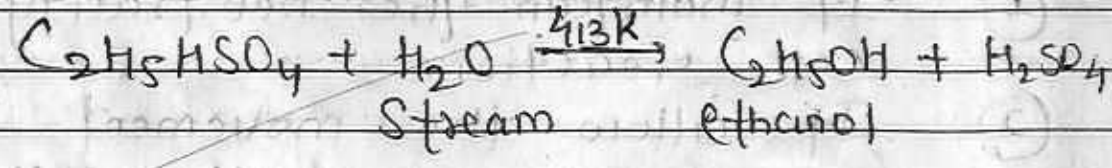
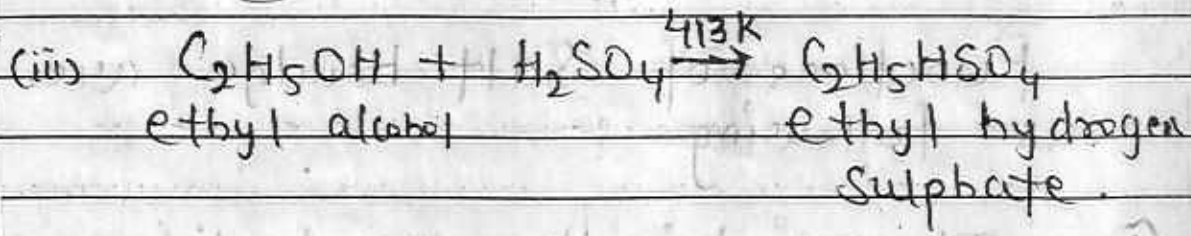
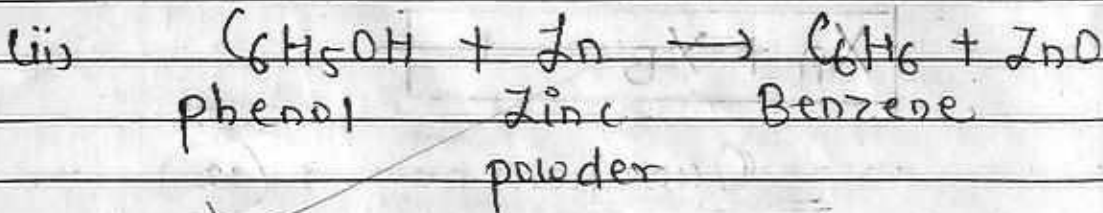
Functions of Salt bridge are as following :-

- 1) It maintain the neutrality of cell reaction.
- 2) It allow the movement of ions from one half cell to another half cell.
- 3) It completes the circuit.
- 4) It prevents the mixing of ion.
- 5) It connected the two containers.

Question no. → (13)

Alkyl halide reacts with sodium alkoxide





Question no. → 14 (or)

Given

$w_B = 18 \text{ gram}$

$w_A = 1 \text{ kg} = 1000 \text{ gram}$

molar mass of glucose is :- $C_6H_{12}O_6$

$= 72 + 12 + 96$

$= 180$

$M_B = 180$

$K_B = 0.52 \text{ K kg mole}^{-1}$

$\Delta T_B = ?$

As we know that,

$\Delta T_B \propto m$

$\Delta T_B = K \cdot m \text{ --- (1)}$



molality :-

$$m = \frac{W_B \times 1000}{M_B \times W_A}$$

~~$$m = \frac{1.8 \times 1000}{10180 \times 1000}$$~~

~~$$m = 100 \text{ kg mole}$$~~

From (1)

~~$$\Delta T_b = 0.52 \times 100$$

$$= 0.52 \times 100$$

$$= 52$$~~

~~$$\Delta T_b = 52$$~~

~~$$m = \frac{1.8 \times 1000}{10180 \times 1000}$$~~

~~$$m = \frac{1}{10}$$~~

m = 0.1 mole per kg

From (2)

~~$$\Delta T_b = k \cdot m$$~~

~~$$\Delta T_b = 0.52 \times 0.1$$~~

~~$$\Delta T_b = 0.052 \text{ } ^\circ\text{C}$$~~

According the Question :-

~~$$\Delta T_b = 373 \text{ K} + 0.052 \text{ K}$$~~

~~$$\Delta T_b = 373.52 \text{ kelvin}$$~~

The temperature is :-

~~$$\Delta T_b = 373.52 \text{ kelvin}$$~~



Question no. → 15

First order reaction :- The reaction in which rate of reaction is directly proportional to the first power of concentration of reactant is known as first order reaction.

The rate constant for first order reaction is given by

$$k = \frac{2.303}{t} \log \frac{a}{a-x}$$

SI unit :- Second^{-1}
 $\text{or } \text{sec}^{-1}$

Second order reaction :- The reaction in which rate of reaction depends upon the variation of second concentration of reactants or directly proportional to the second power of concentration of reactants are known as second order reaction.



$$\frac{dx}{dt} \propto [A]^2$$

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

SI unit :- litre mole⁻¹ second⁻¹

Thus, The unit of rate constant for first order reaction is second⁻¹ and for second order reaction is litre mole⁻¹ second⁻¹

Question no. -> (16)

d block

f block

The last electron will enter in d orbital.

(i) The last electron will enter in f orbital.

They are called transition compound.

(ii) They are called inner transition element.

(i) They are present in nature and they are stable element.

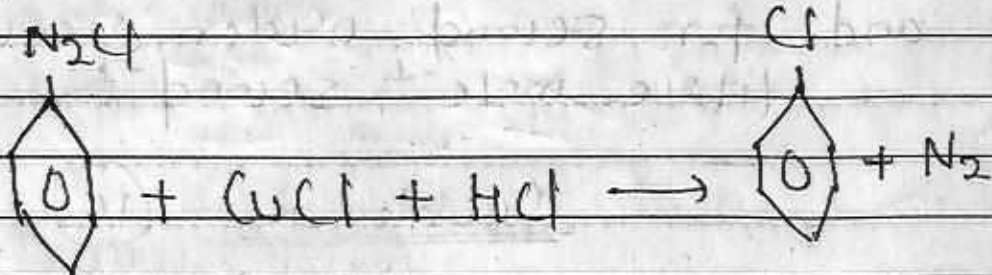
(iii) They are rare element and they are radio active elements.



प्रश्न क्र.

Question no. → (17) (OP)

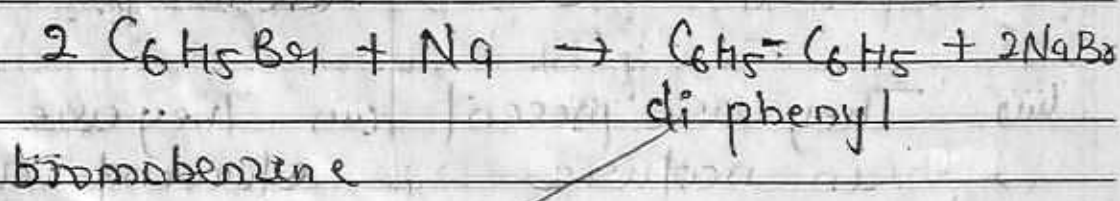
Sandmayer's reaction :- Benzene diazonium Chloride is react with Cuprous Chloride and hydrochloric acid to form Chlorobenzene.



B
S
E

Benzene diazonium Chloride	Cuprous Chloride	Chlorobenzene
----------------------------	------------------	---------------

Fittig reaction :- Bromobenzene is react with sodium to form Di phenyl.

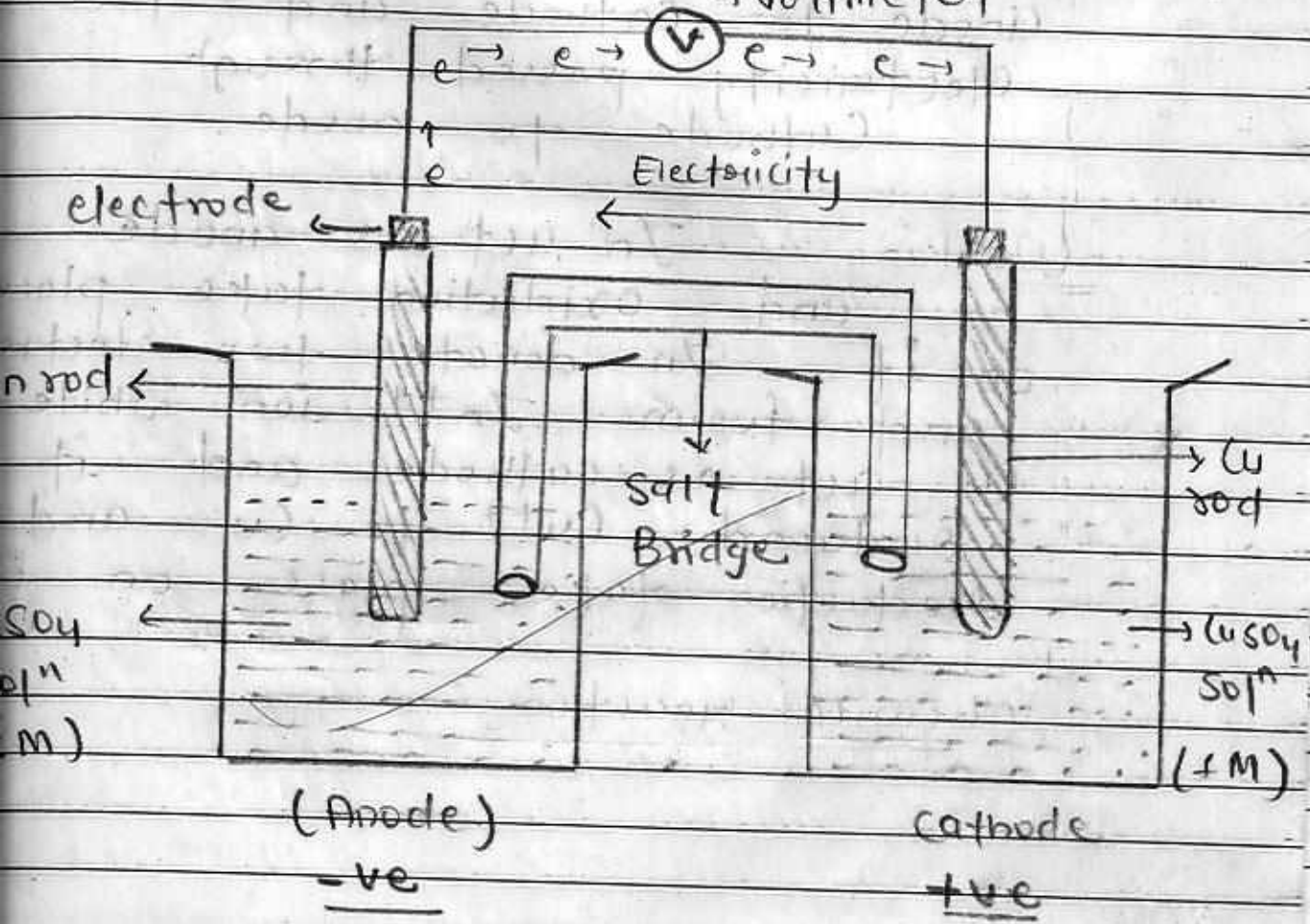




Question no. -> (18)

Electrochemical cell :- The device in which the electrical energy is produced with the result of redox reaction or electrochemical reaction is called Electrochemical Cell. These cell convert the chemical energy to the electrical energy.

for example :- Daniel cell.
 \rightarrow voltmeter





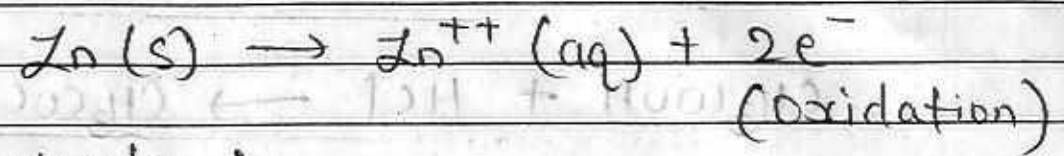
Construction :- In this type of cell, two containers are connected. Out of which one container has Zn rod which is dipped in $ZnSO_4$ solution and other have Cu rod which is dipped in $CuSO_4$ solution. These containers are connected by the salt bridge. And both the electrodes are connected with the Voltmeter. The electrons are move from Anode to Cathode and the electricity passed through Cathode to anode.

Working :- Zn act as anode and oxidation take place on it. Zn donate two electrons and form Zn^{++} ion while Cu act as cathode and it reduced Cu^{++} to Cu and reduction take place on it.

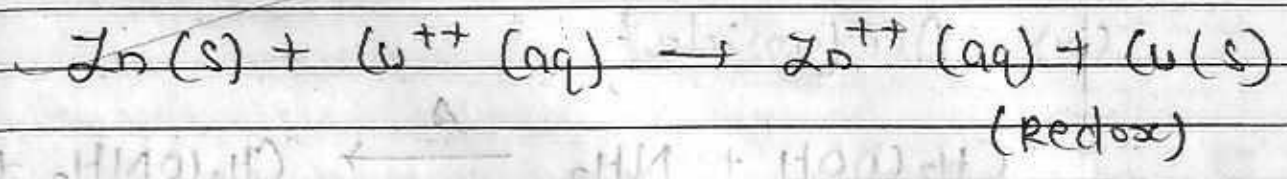
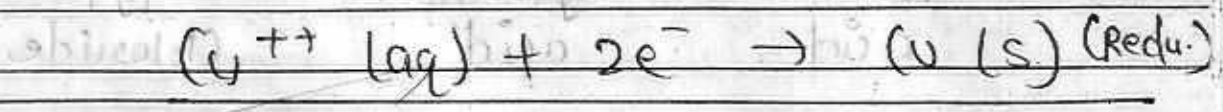
Chemical reaction :-



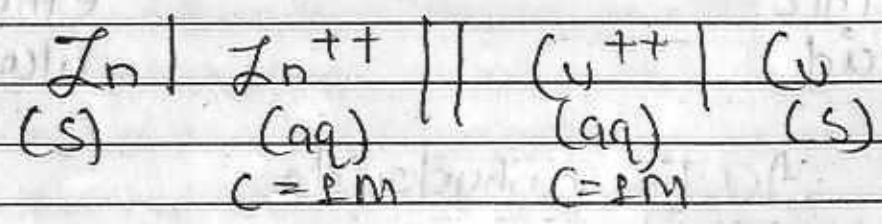
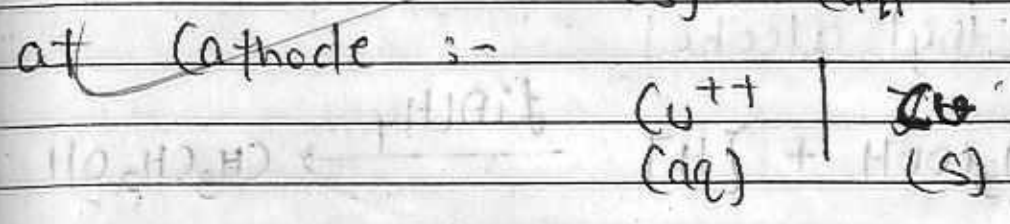
At anode :-



At cathode :-

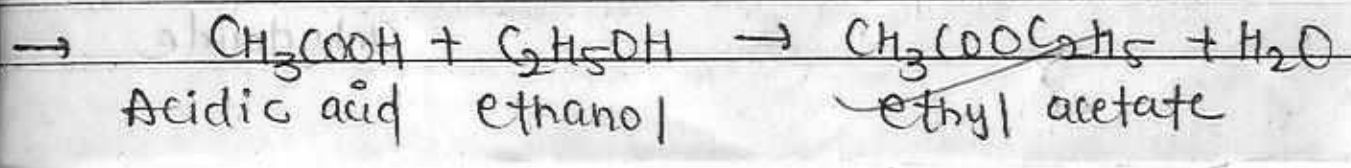


Cell representation :-



Question no. -> (19)

(ii) Ethyl acetate



प्रश्न क्र.

(iii) Acetyl chloride



Acetic acid

Hydrochloric acid

Acetyl chloride

(iv) Acetamide



Acetic acid

Ammonia

Acetamide

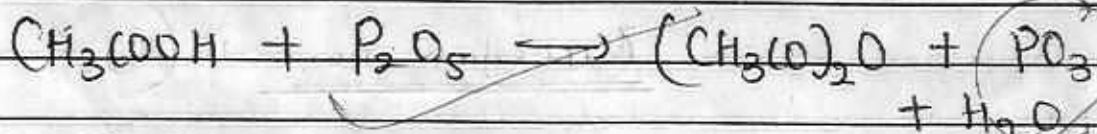
(v) Ethyl alcohol



Acetic acid

Ethyl alcohol

(vi) Acetic anhydride



Acetic acid

Acetic anhydride

Copier Label ST