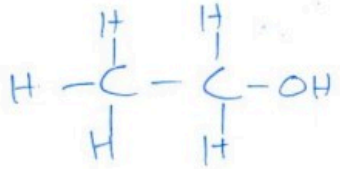


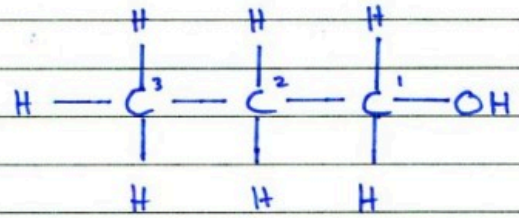


Use for rough work



Q. No. 2 Part (i)

"Propan-1-ol"



$CH_3CH_2CH_2OH$

Q. No. 2 Part (ii)

"Contact Process"

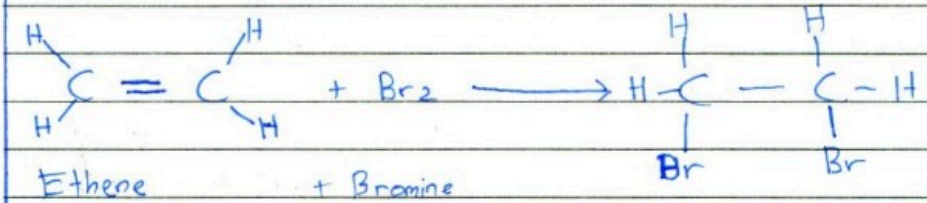
Catalyst = V_2O_5 (Vanadium Pentaoxide)

Its role is to convert SO_2 into SO_3 so the process can continue to form H_2SO_4 in the end which is used to make fertilizers, explosives, paint etc. Catalyst is used to fasten up the process of Contact Process so it can be made at high speed without damaging the element (SO_2)

Q. No. 2 Part (iii)

"Unsaturated react bromine

When an unsaturated hydrocarbon such as ethene react with ..... (bromine) it changes bromine colour from red orange to colourless substance. It makes the bromine colourless



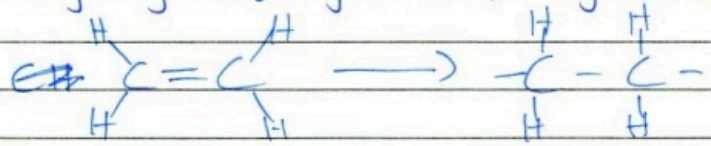
Ethene + Bromine

Q. No. 2 Part (iv)

"Polymer and Examples"

Polymers are made by the structural unit of monomers. Long chain of monomers forms Polymer. Poly means many, which indicates that many monomers joined to form polymers. Polymers are used in various purposes in industry.

Exp: Polyethylene, Nylon 6,6, Polyester, Polyamide



Q. No. 2 Part (v)

"Metal reacts with Acid"

When metal reacts with Dilute acid it produces Salt and hydrogen gas as product

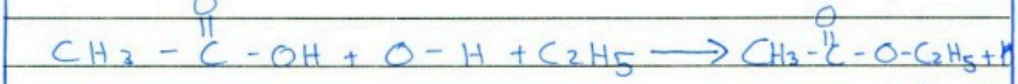
Metal + Dilute Acid $\longrightarrow$ Salt + H_2

$Mg + 2HCl \longrightarrow MgCl_2 + H_2$

Q. No. 2 Part (vi)

"Esterification"

When Carboxylic (COOH) and Alcohol (OH) are ~~con~~ doing reaction in the presence of dilute ~~acid~~ Sulphuric acid it changes into Ester (RCOOR') which has a fruity taste. ~~(C)~~Carboxlyic (~~C~~OH) is exchanged with Alchol (OR) to form (RCOOR').



Q. No. 2 Part (vii)

"Advantages of hydrogen-O"

- It produces water vapour as an product
- Its an renewable energy resource
- It doesn't have any harmful gases and it is very reliable process
- Clean energy source

Q. No. 2 Part (viii)

"Emperical formulae"

"Emperical formula mass":

CH_2O

$(12 + 2\times1 + 16)$

$= 30$

"Molecular mass"

$n = \frac{180}{30}$

$n = 6$

"Answer"

$(CH_2O)_n$

$(CH_2O)_6$

$C_6H_{12}O_6$

Q. No. 2 Part (ix)

"Nitrogen oxide react with Hydrogen"

- $O_2 + [O] \rightarrow O_3$
- Hydrogen + $[O] \longrightarrow RCO$
- $RCO + O_2 \longrightarrow RC(O)O_2$
- $RC(O)O_2 + NO_2 \rightarrow RC(O)O_2NO_2$

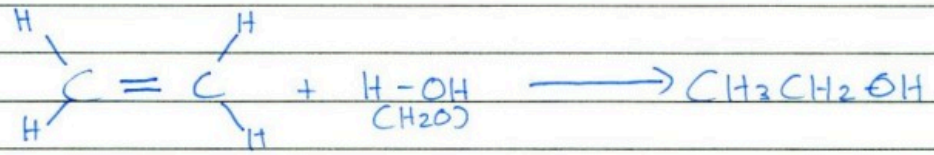
Q. No. 2 Part (x)

"Two Sources function"

- Sources of Vitamin A:
  - ~~Peas~~
  - Carrots
  - Fish
- Function: eye sight, immunity and skin health

Q. No. 2 Part (xi)

"Ethene with Steam"



Q. No. 3 (Page 1)

"Enlist any four petroleum fraction".

"Kerosene :"

Kerosene is produced out of the fractional distillation column at an specific temperature. It is used in many applications. (175-200°C)

"Uses" :

Kerosene is mostly used in jets, airoplane and fighter jets. Which gave them significant amount of energy to travel at high speed.

"Diesel :"

Diesel is also extracted out of distillation column at an specific temperature. Diesel is very important in daily life for transportation of people, material, crops etc.

'Uses :'

Diesel is used in trains, buses, cars etc. which is important to (make them) move along the road and railway tract.

"Bitumen: "

Bitumen has significant and the highest carbon chain length with highest temperature. it is extracted out of fractional distillation abae 708

Q. No. 3 (Page 2)

'Uses :'

Bitumin is used to make house roofs, tiles and bricks which is helpful to protect houses from excess sunlight and rain.

"Petrol / LPG"

Petrol and LPG are also extracted out of the fractional distillating column. At lower temperature with lower carbon chain length.

'Uses :'

Petrol are used in cars, starting a fire machines, and Industries.

LPG is mostly used in houses to cook food and in heater system

Q. No. 4 (Page 1)

"Limiting and Mass Produced"

Given Data:

Mass of Zn = 150g

Mass of H_2SO_4 = 200g

a) Limiting b) Mass of H_2 produced

$$Zn + H_2SO_4 \longrightarrow 2ZnSO_4 + H_2$$

Mole of Zn

$$Mol = \frac{Mass}{M.M}$$

$$Mol = \frac{150}{63.5}$$

Mol = 2.36 of Zn

'Mole of H_2 from mol of Zn':

1 mol of Zn = 1 mol of H_2

2.36 mol of Zn = 1 × 2.36 mol of H_2

= 2.36 mol of H_2

'Mole of H_2SO_4'

$$Mol = \frac{Mass}{M.M}$$

$$= \frac{200}{98}$$

$$= 2.04$$

R.W

(1×2) + 32 + 16×4

= 98

"Mol of H_2 from mol of H_2SO_4"

Q. No. 4 (Page 2)

1 mol of H_2SO_4 = 1 mol of H_2

2.04 mol of H_2SO_4 = 2.04 x 1 mol of H_2

= 2.04 mol of H_2

"Limiting = 2.04 = H_2SO_4"

b)

Mass of H_2 produced

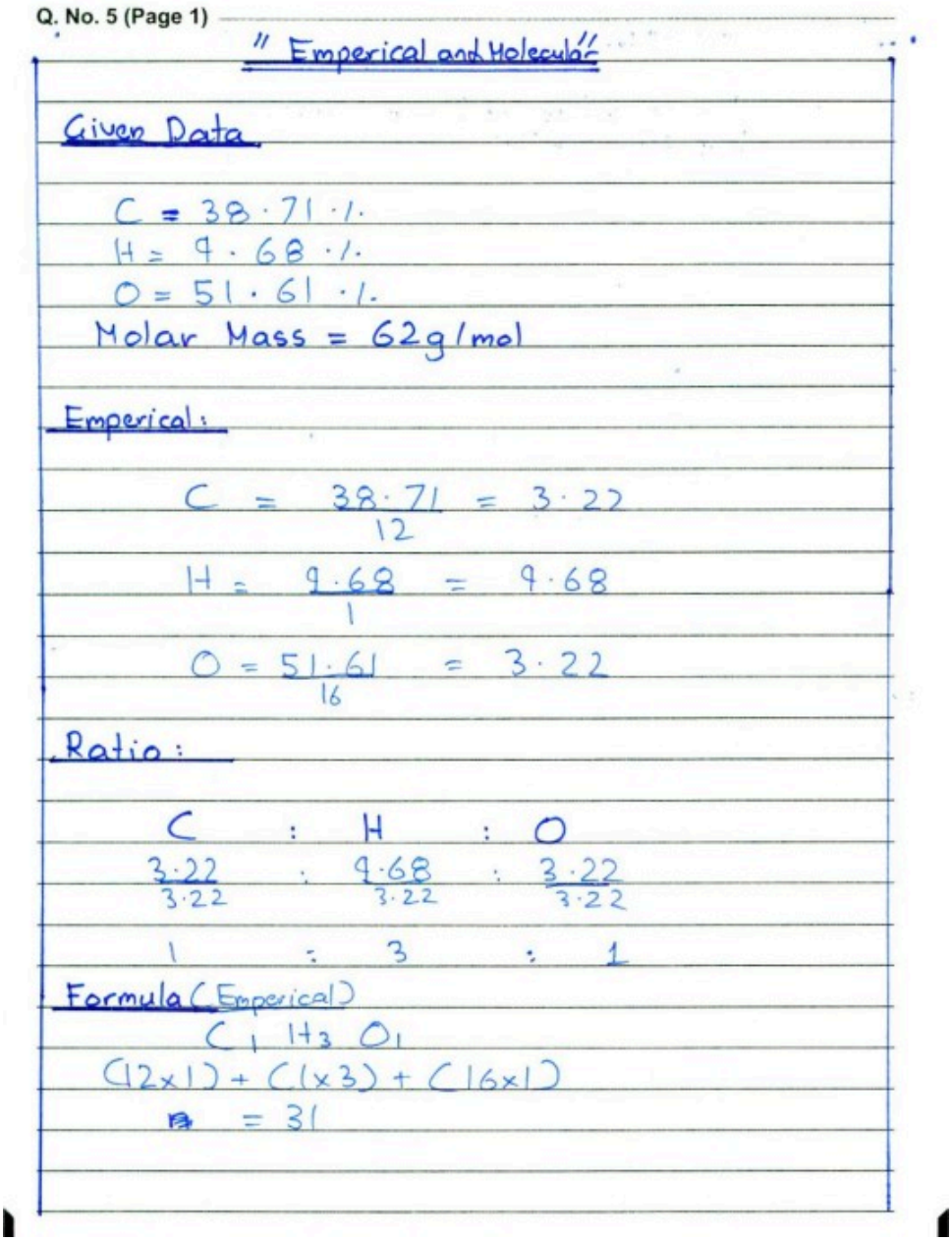
$$Mol = \frac{Mass}{M.M}$$

$$2.04 = \frac{Mass}{2}$$

$2 \times 2.04 = Mass$

Mass = 4.08 Answer.

Q. No. 5 (Page 1)



" Emperical and Molecular"

Given Data

C = 38.71 %
H = 9.68 %
O = 51.61 %
Molar Mass = 62g/mol

Emperical:

$C = \frac{38.71}{12} = 3.22$

$H = \frac{9.68}{1} = 9.68$

$O = \frac{51.61}{16} = 3.22$

Ratio:

C : H : O

$\frac{3.22}{3.22} : \frac{9.68}{3.22} : \frac{3.22}{3.22}$

1 : 3 : 1

Formula (Emperical)

$C_1H_3O_1$

$(12 \times 1) + (1 \times 3) + (16 \times 1)$

= 31

Q. No. 5 (Page 2)

"Molecular formula"

$$n = \frac{\text{Molecular formula Molar Mass}}{\text{Emperical molar Mass}}$$

$$n = \frac{62}{31}$$

$$n = 2$$

"Molecular formula"

$(CH_3O)_n \Rightarrow (CH_3O)_2$

$C_2H_6O_2$ ⟶ Answer

Q. No. 6 (Page 1)

"Electrolysis of Copper Sulphate

"Dissociation of CuSO4"

$CuSO_4 \longrightarrow Cu^{+2} + SO_4^{-2}$

During electrolysis of dilute copper sulphate the ions are disintegrated into Cu^{+2} and SO_4^{-2} and both the electrode are made up of Cu Due to which Cu^{+2} moves Anode and the reaction on both electrode will be only Cu^{-2} which convert into neutral atoms. At Anode Cu is oxidized by losing electron and changing into neutral
At cathode Cu is reduced by gaining electron and changing into neutral

Anode reaction decreases in mass

"At Anode" : Cu does oxidation at Anode by losing electron

$Cu^{+2} \longrightarrow Cu^{+2} + 2e^-$

"Cathode :"

$Cu^{+2} + 2e^- \longrightarrow Cu_{(s)}$

∴

Cu Reduces at Cathode by gaining electron

Q. No. 6 (Page 2)