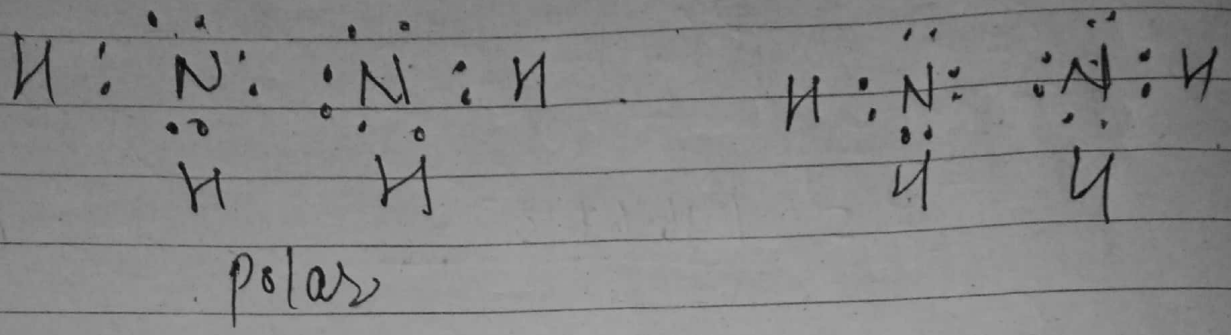
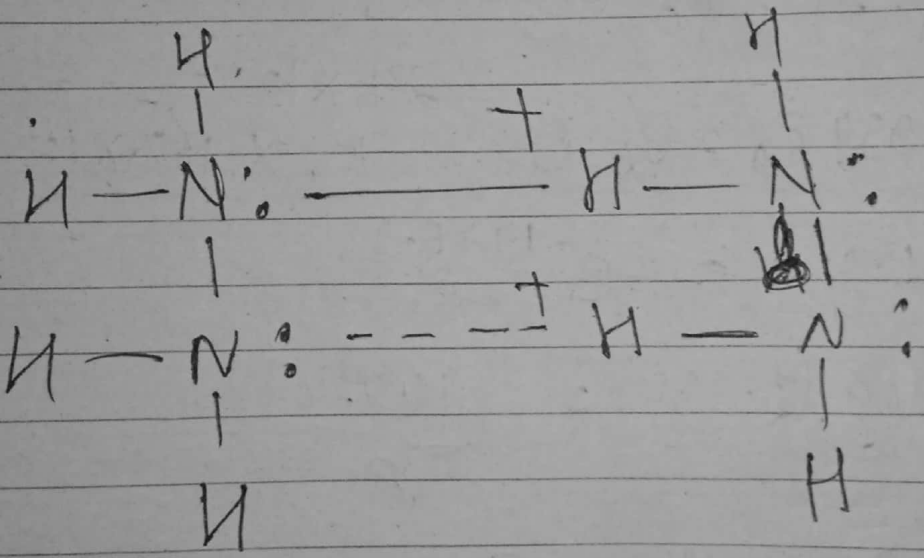
1 b)

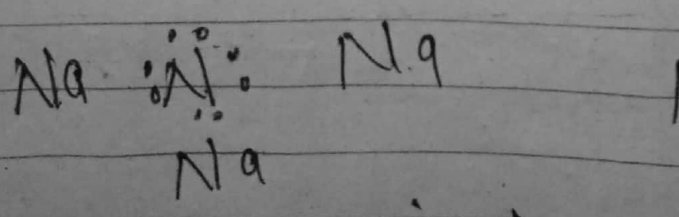


polar

→ dipole – dipole intermolecular force



c



ion – dipole intermolecular force

(d) hydrazine would be soluble in water

→ Yes

(e) → NO

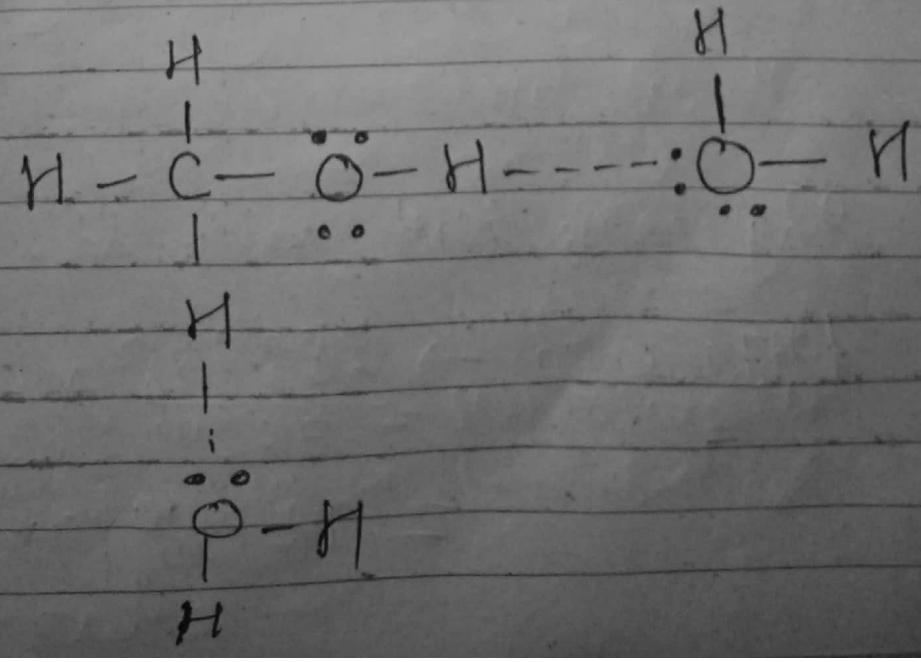
Q. No. 2

(a)

(b) $2Fe_2O_3 + 3C \rightarrow 4Fe + 3CO_2$

(b) $NH_4NO_3(s) + \text{heat} \rightarrow 2H_2O + N_2O$

Q. No. 3



Q.No. 4

(a)

$$4MnO + O_2 \rightarrow 2Mn_2O_3$$

4 1 2

$4(70.937)$ 32

$= 283.748\ g$ 32 g.

283.748 g of MnO reach with 32 g of O_2.

13.4 g of MnO $\rightarrow \frac{32}{283.748} \times 13.4$

$= 1.511\ g$

O_2 is the limiting reagent.

(b)

32 g of O_2 react with 283.748 g of MnO.

1.47 g of $O_2 \rightarrow \frac{283.748}{32} \times 1.42$

$= 12.59$ gram.

(6) C

4 mole of MnO → 2 Mole of Mn_2O_3

$$\frac{13.4}{283.748} = \frac{\text{mass of } Mn_2O_3}{315.748}$$

mass of Mn_2O_3 = 14.911 gm.

Q.No.5

(a)

$$Cu(OH)_2 + 2HNO_3 \rightarrow Cu(NO_3)_2 + 2H_2O$$

(b)

$$Ca(OH)_2 + Na_2CO_3 \rightarrow 2NaOH + CaCO_3$$

(c)

$$2HCl + Mg(HCO_3)_2 \rightarrow MgCl_2 + 2CO_2 + 2H_2O$$

Q No 7

~~[H+]~~ Molarity = 0.010 M

$$[H^+] = \frac{K_w}{[OH^-]} = \frac{1 \times 10^{-14}}{0.010} = 1 \times 10^{-12}$$

$$pH = -\log[H^+] = -\log(1 \times 10^{-12}) = 12$$

Q.No.6

$$\underset{1}{H_2SO_4} + \underset{2}{2KOH} \rightarrow \underset{2}{2H_2O} + \underset{1}{K_2SO_4}$$

(a)

Weight of H_2SO_4 = ~~nM~~ nM

$= (0.75 \times 0.025) \times 98$

$= 1.83\ g$

Weight of KOH = nM

$= (0.5 \times 0.025) \times 56$

$= 0.7\ g$

98 gm of H_2SO_4 react with 112 gm of KOH

1.83 gm of $H_2SO_4 = \frac{112}{98} \times 1.83$

$= 2.09$ gm

So KOH is limiting reagent.

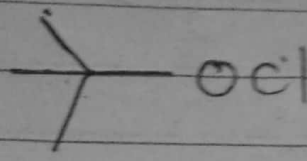
(b) Resulting solution is neutral.

(c) 112 gm of KOH = 98 gm of H_2SO_4

0.7 gm of KOH $= \frac{98}{112} \times 0.7$

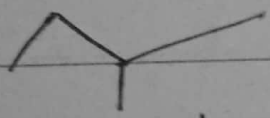
$= 0.6125$ gm of H_2SO_4

C_4H_9OCl

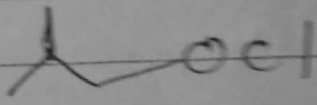


2-chlorosyl-2-methyl propane

1-chlorosyl butane



2-chlorosyl butane



1-chlorosyl-2-methyl propane.

Q.No.10

Limiting reagent $= O_2$

O_2

mass of $O_2 = 1.47gm$

maximum amount of $Mn_2O_3 = 631.5g$

mass of Mn_2O_3 = molecular weight of Mn_2O_3
× (moles of limiting reagent
× stoichiometry of product)

$= 315.748 \times 0.046 \times 2$

$= 29.009.gm$

Q.No.9

Cannabielsoin has ~~two~~ three functional group i.e

1. a phenol group
2. an ether group
3. Alkene.