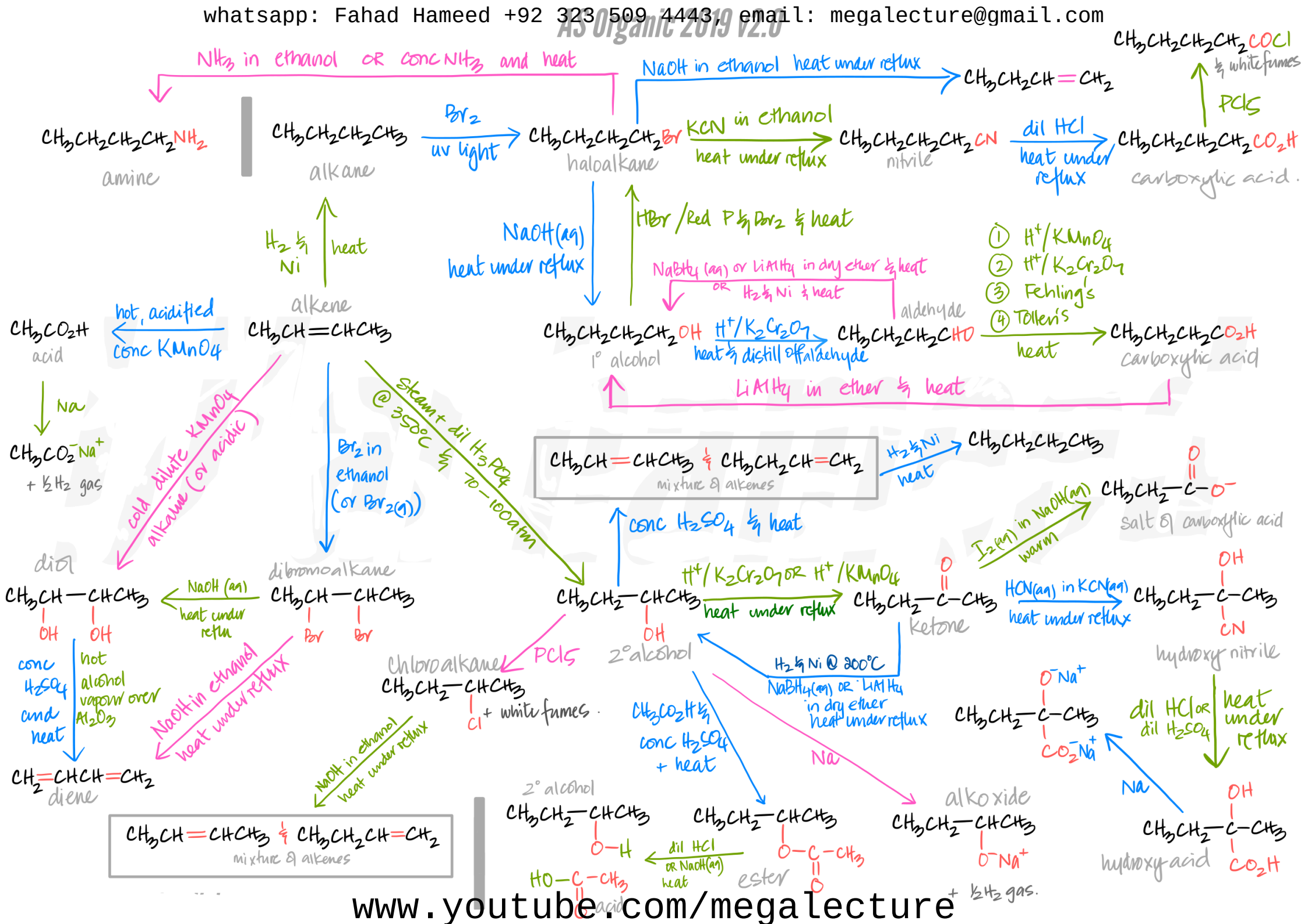
NH3 in ethanol OR conc NH3 and heat
NaOH in ethanol heat under reflux
CH3CH2CH2CH2COCl
white fumes
PCl5
CH3CH2CH2CH2NH2
amine
CH3CH2CH2CH3
alkane
Br2
uv light
CH3CH2CH2CH2Br
haloalkane
KCN in ethanol
heat under reflux
CH3CH2CH2CH2CN
nitrile
dil HCl
heat under reflux
CH3CH2CH2CH2CO2H
carboxylic acid.
CH3CH2CH=CH2
H2 & Ni
heat
alkene
CH3CH=CHCH3
NaOH(aq)
heat under reflux
HBr / Red P & Br2 & heat
NaBH4 (aq) or LiAlH4 in dry ether & heat
OR H2 & Ni & heat
CH3CH2CH2CH2OH
1° alcohol
H+/K2Cr2O7
heat & distill off aldehyde
CH3CH2CH2CHO
aldehyde
① H+/KMnO4
② H+/K2Cr2O7
③ Fehling's
④ Tollen's
heat
CH3CH2CH2CO2H
carboxylic acid
LiAlH4 in ether & heat
CH3CO2H
acid
hot, acidified
conc KMnO4
Na
CH3CO2⁻Na+
+ ½H2 gas
cold dilute KMnO4
alkaline (or acidic)
Br2 in
ethanol
(or Br2(g))
steam + dil H3PO4
@ 350°C &
70 – 100 atm
CH3CH=CHCH3 & CH3CH2CH=CH2
mixture of alkenes
H2 & Ni
heat
CH3CH2CH2CH3
conc H2SO4 & heat
diol
CH3CH(OH)—CH(OH)CH3
NaOH (aq)
heat under reflux
dibromoalkane
CH3CH(Br)—CH(Br)CH3
H+/K2Cr2O7 OR H+/KMnO4
heat under reflux
CH3CH2—C(=O)—CH3
ketone
I2(aq) in NaOH(aq)
warm
CH3CH2—C(=O)—O⁻
salt of carboxylic acid
HCN(aq) in KCN(aq)
heat under reflux
CH3CH2—C(OH)(CN)—CH3
hydroxy nitrile
CH3CH(OH)—CH(OH)CH3
conc H2SO4
and heat
hot
alcohol
vapour over
Al2O3
CH2=CHCH=CH2
diene
NaOH in ethanol
heat under reflux
chloroalkane
CH3CH2—CH(Cl)CH3
+ white fumes.
PCl5
2° alcohol
CH3CH2—CH(OH)CH3
H2 & Ni @ 300°C
NaBH4(aq) OR LiAlH4
in dry ether
heat under reflux
CH3CO2H &
conc H2SO4
+ heat
Na
2° alcohol
CH3CH2—CH(OH)CH3
dil HCl
OR NaOH(aq)
heat
ester
CH3CH2—CH(O—C(=O)—CH3)CH3
HO—C(=O)—CH3
alkoxide
CH3CH2—CH(O⁻Na+)CH3
+ ½H2 gas.
CH3CH2—C(O⁻Na+)(CO2⁻Na+)—CH3
dil HCl OR
dil H2SO4
heat
under
reflux
Na
CH3CH2—C(OH)(CO2H)—CH3
hydroxy acid
CH3CH(OH)—CH(OH)CH3
NaOH in ethanol
heat under reflux
CH3CH=CHCH3 & CH3CH2CH=CH2
mixture of alkenes