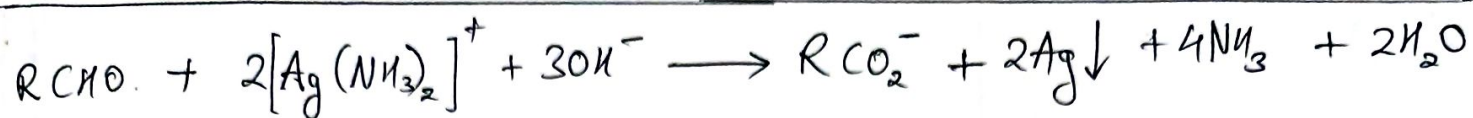


TOLLEN'S TEST



⇒ All type of aldehyde

⇒ Ketones do NOT give Tollen's test
 Except: α -hydroxy ketone \longrightarrow $\left(CH_3 - \overset{\overset{O}{\parallel}}{C} - \underset{\underset{OH}{|}}{C} - CH_3 \right)$

⇒ Glucose & fructose

⇒ Terminal alkyne eg. $HC \equiv CH$ ✓, $CH_3 - C \equiv CH$ ✓, $CH_3 - C \equiv C - CH_3$ ✓

⇒ formic acid

Fehling's TEST :

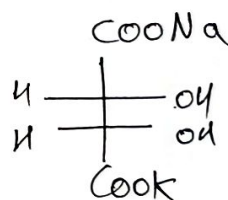
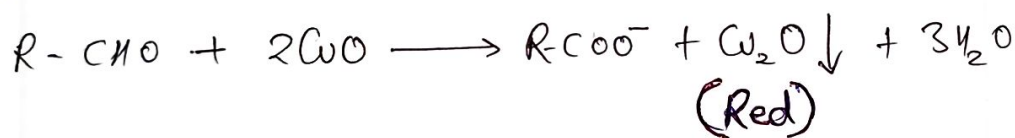
fehling's solution

fehling's solⁿ
(A)

aq. copper sulphate
 $\{ CuSO_4 \cdot 5H_2O \}$
 Blue colour

+ fehling's solⁿ
(B)

alkaline sodium
 potassium tartarate
 (Rochelle salt)



⇒ Aromatic aldehyde cannot be oxidised By fehling's solⁿ.

⇒ Aliphatic aldehyde ✓

⇒ Glucose & Fructose ✓

⇒ Terminal Alkyne ✓

⇒ formic acid ✓

Tollen's test > fehling's Test

Fehling's Solⁿ & Tollen's reagent.

Name of the compounds	Fehling's test	Tollen's Test
Glucose, fructose, α -hydroxy ketone, α -hydroxy aldehyde, formic acid	✓	✓
Glyoxal	X	✓
Glyoxylic acid	X	✓
Succinaldehyde	✓	✓
Pyruvaldehyde (CH_3COCHO)	✓	✓

SCHIFF TEST: Aldehydes restore the magenta colour of the Schiff's reagent (Rosaline hydrochloride is dissolved in H_2O & SO_2 is passed till the magenta colour is decolourized).

→ ketones do not restore the colour of Schiff's reagent except acetone, which restores the colour very slowly.

• Aldehydes ✓

IODOFORM TEST: CHI_3 (Iodoform)

Pale yellow crystalline solid (yellow ppt) with hospital like smell (Antiseptic smell)

which will give iodoform test?

→ Carbonyl compound mai α -carbon ka pass 3-hydrogen hona chaye!

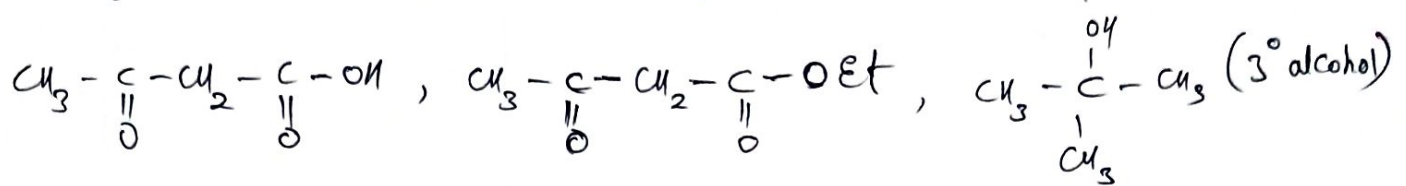
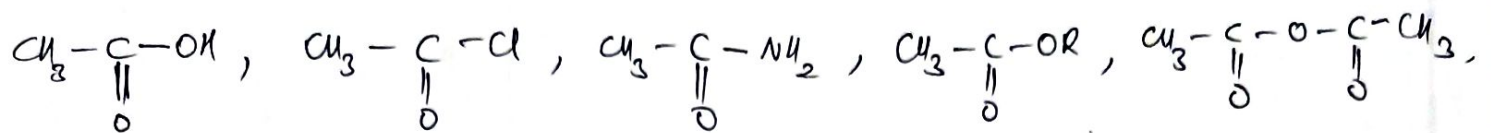
eg. ⇒ $\text{CH}_3-\text{CH}_2-\text{OH}$ (only primary alcohol)

⇒ $\text{CH}_3-\underset{\text{OH}}{\underset{|}{\text{CH}}}-\text{CH}_3$, $\text{CH}_3-\underset{\text{OH}}{\underset{|}{\text{CH}}}-\text{CH}_2-\text{CH}_3$, $\text{Ph}-\underset{\text{OH}}{\underset{|}{\text{CH}}}-\text{CH}_3$ (secondary alcohol)

⇒ $\text{CH}_3-\underset{\text{O}}{\underset{||}{\text{C}}}-\text{H}$ (only aldehyde), $\text{CH}_3-\underset{\text{O}}{\underset{||}{\text{C}}}-\text{CH}_3$, $\text{CH}_3-\underset{\text{O}}{\underset{||}{\text{C}}}-\text{CH}_2-\text{CH}_3$, $\text{Ph}-\underset{\text{O}}{\underset{||}{\text{C}}}-\text{CH}_3$

⇒ $\text{CH}_3-\underset{\text{X}}{\underset{|}{\text{CH}}}-\text{CH}_3$, $\text{CH}_3-\underset{\text{X}}{\underset{|}{\underset{\text{X}}{\text{C}}}}-\text{CH}_3$,

The compounds that respond negatively to iodoform test are



Victor Meyer Test: ① To distinguish 1°, 2° & 3° alcohol.

② 1°, 2° & 3° alcohol → substrate

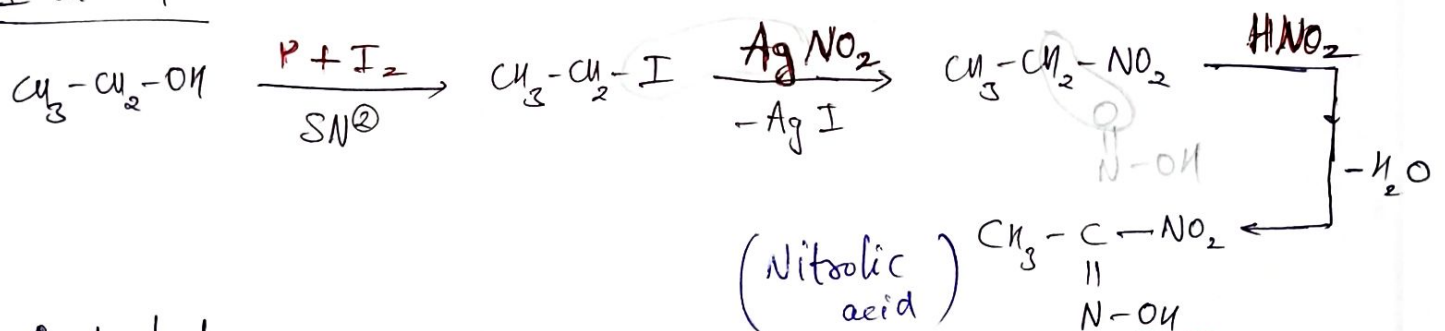
③ $\text{P} + \text{I}_2$, AgNO_2 , HNO_2 , ④ $1^\circ > 2^\circ > 3^\circ$

R → Red → 1° alcohol

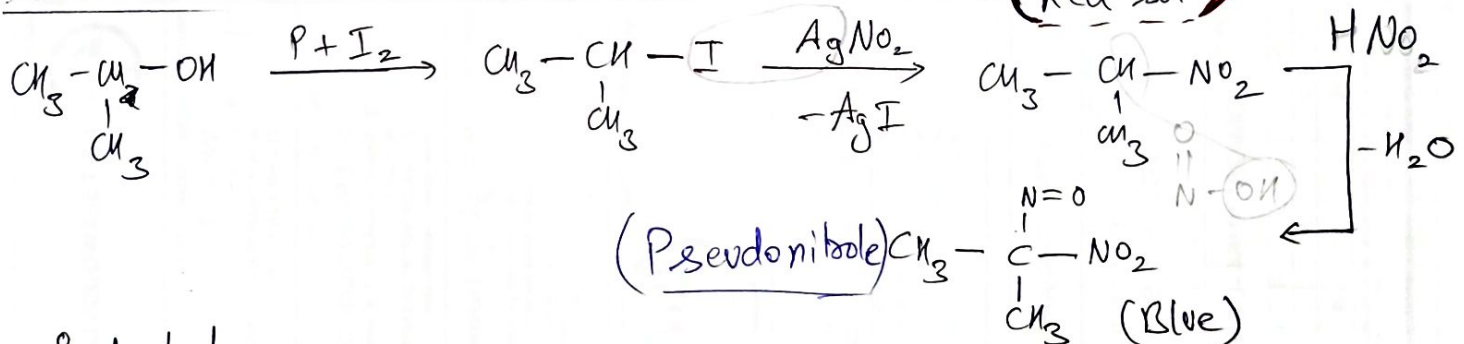
B → Blue → 2° alcohol

C → Colourless → 3° alcohol

1° alcohol



2° alcohol



3° alcohol

