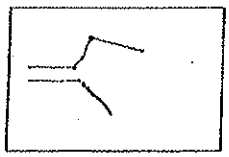
exercise #[redacted] boxing lessons with alkenes

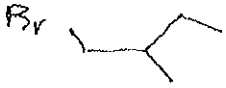
carbocation, halohydrin and radical additions and alkene syntheses

Organic Chem I Alfred State College

1)



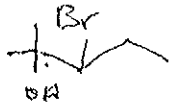
+ HBr → (H_2O_2, ether)



1-bromo-2-methylbutane

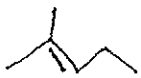
2)

2-methyl-2-pentene + Br_2 → (wet CCl_4)

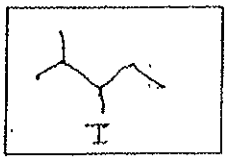


3-bromo-2-methyl-2-pentanol

3)

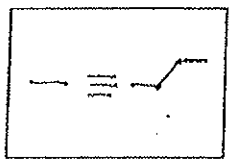


2-methyl-2-pentene + HI → (Peroxide/acetic acid)



anti: Mark. add.

4)

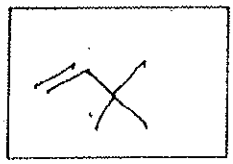


+ H_2 → (Pd Black (Lindlar Catalyst))

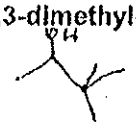
Z-only 2-hexene

5)

3,3-dimethyl-2-bromobutane + OH^- → (ethanol)

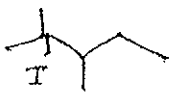


only

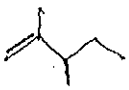


6)

2,3-dimethyl-1-pentene+ HI → (ether or acetic acid)



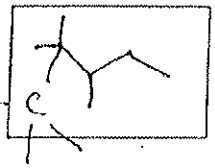
2,3-dimethyl-2-iodopentane



Mg / dry ether

O= C Acetone in dry ether

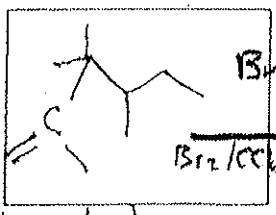
H^+/H_2O

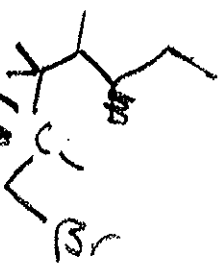


HO

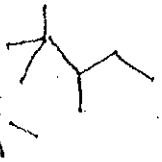
Phosphoric acid/reflux

Br_2/CCl_4





dehydration

rearrange ? → 

3°

→ no higher degree carbocation

If no rearrangement

So no rearrangement

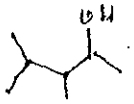
exercise 18 (continued)

7)

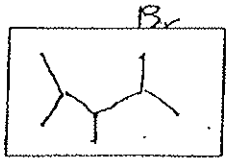
2-methylpropene + H_2O (H_2SO_4 / acetic acid (solvent)) → 2-methyl-2-propanol

2-methyl-2-propanol → (PBr_3 neat (bubbled) or $SOBr_2$ pyridine) → 2-methyl-2-bromopropane

2-methyl-2-bromopropane → (H_2O) → 2-methylpropene



8)

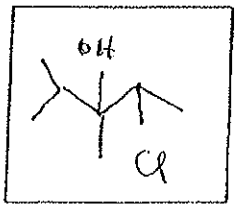


+ OH^- (ether) → 3,4-dimethyl-2-pentanol

3,4-dimethyl-2-pentanol → (PBr_3 neat or $SOBr_2$ pyridine) → major + 3,4-dimethyl-1-pentene (minor)

major + 3,4-dimethyl-1-pentene (minor) → (KOH / ethanol) → 3,4-dimethyl-2-pentanol

major → (H^+ / H_2O / H_2O_2) → 3,4-dimethyl-2-pentanol (where it all began...)

major → (Cl_2 in wet CCl_4) → 

major → (Conc sulfuric acid, then H_2O) →