

Your Name: Answers 1 pt

3.1 Eliminating Snacks (12 pts/ 2 pt for each correct line)

CIRCLE for both the dehydration and dehydrohalogenation *menus*, the effect of the listed variations on the rates on these two reaction types. (n/a means not applicable)

variation	effect on dehydrohalogenation rate	effect on dehydration rate
1) dominant reaction mechanism	E1 <u>E2</u> SN1 SN2	<u>E1</u> E2 SN1 SN2
2) substrate concentration down	up n/a <u>down</u>	up n/a <u>down</u>
3) Reaction occurs only with β H	<u>yes</u> no	yes <u>no</u>
4) OH^- concentration increased	up n/a <u>down</u>	up n/a <u>down</u>
5) Rearrangement occurs	yes <u>no</u>	<u>yes</u> no
6) Primary H effects occur	<u>yes</u> no	yes <u>no</u>

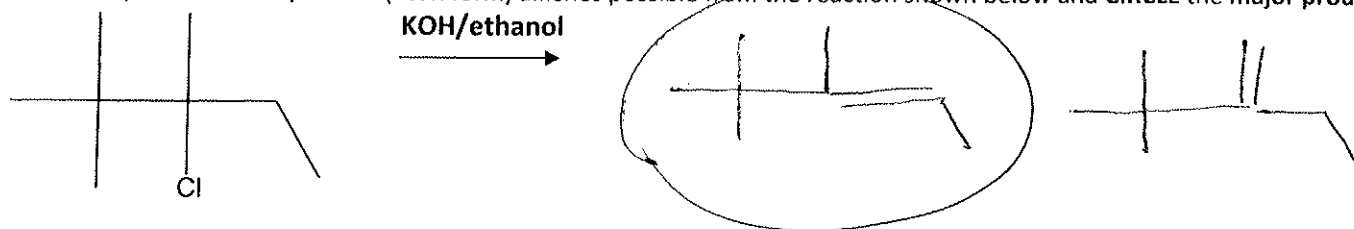
3.2. Match-Maker Chemistry (2 pt each/ 22 pts)

Match the 8 items on the left with the most pertinent descriptor in the list on the right
(Several in the list below are not used.)

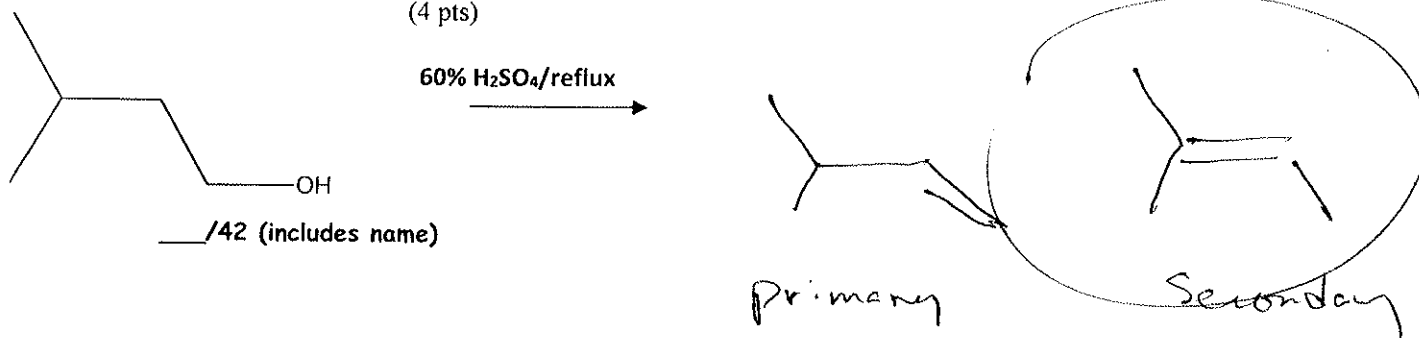
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|--|----------|--|
| 1) Bromine test for alkenes | <u>m</u> | a) makes halohydrins |
| 2) reagents for E-only alkene | <u>b</u> | b) E1 |
| 3) necessary for anti-Mark. addition of HBr across C=C | <u>k</u> | c) requires beta H |
| 4) $\text{Br}_2/\text{H}_2\text{O}$ in CCl_4 | <u>a</u> | d) butylenes $\rightarrow$ 2,2,4,4-tetramethylpentenes |
| 5) dehydrohalogenation of alkyl halides | <u>c</u> | e) ether (dry) |
| 6) Markovnikov additions across C=C | <u>f</u> | f) carbocation mechanism |
| 7) reagent needed for allylic substitution of Br on alkene | <u>g</u> | g) NBS (N-bromosuccinimide) |
| 8) mechanism for dehydration of alcohols | <u>b</u> | h) NH_3 (l) and Na^+ |
| 9) necessary for Z-only alkene synthesis | <u>i</u> | i) KMnO_4 (aqueous, cold) |
| 10) syn-hydroxylation | <u>i</u> | j) Pd black (Lindlar's) and H_2 |
| 11) Brown two step reagent for anti Mark. only addition to ROH | <u>h</u> | k) peroxides (H_2O_2) |
| | | l) $\text{S}_{\text{N}}2$ |
| | | m) orange color disappears |
| | | n) B_2H_6 |

3.3 Soothsaying (7 pts)

a) Predict all the possible (=can form) alkenes possible from the reaction shown below and **CIRCLE** the major product (3 pts)



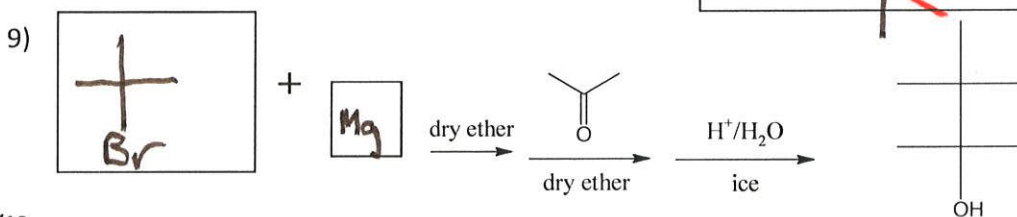
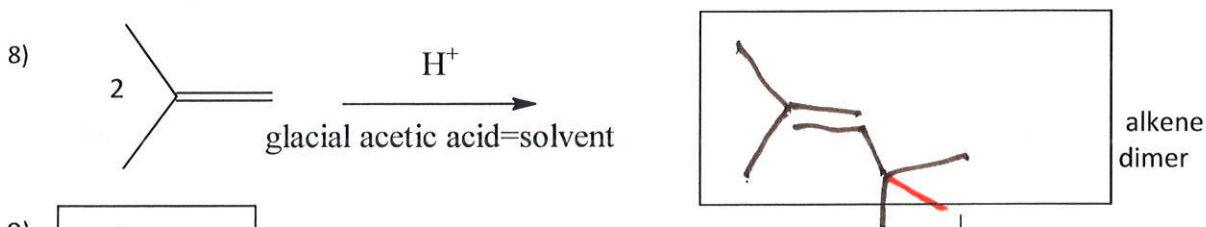
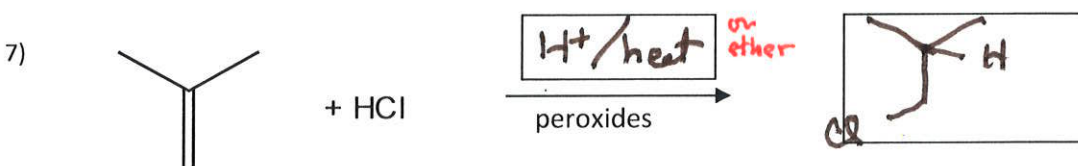
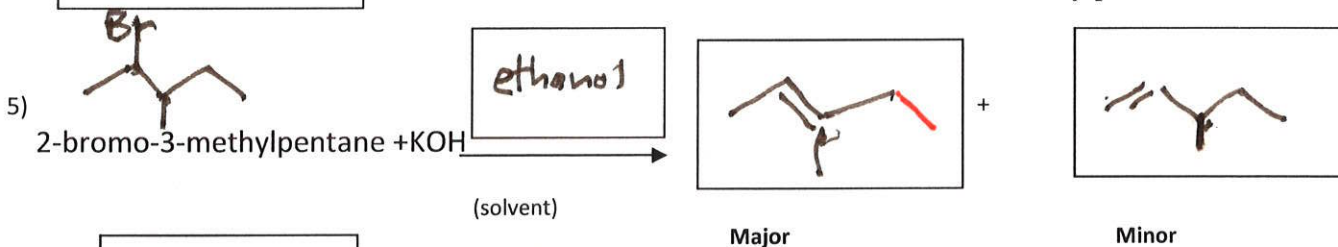
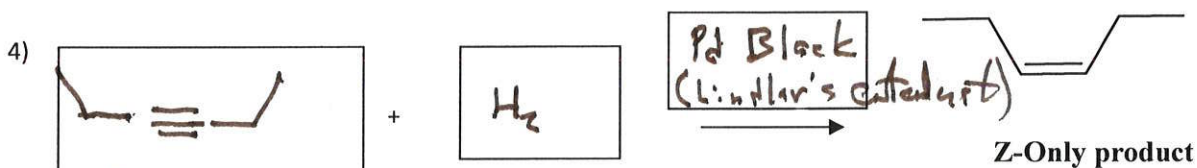
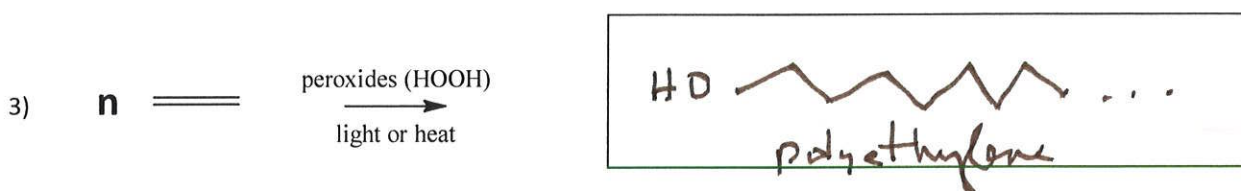
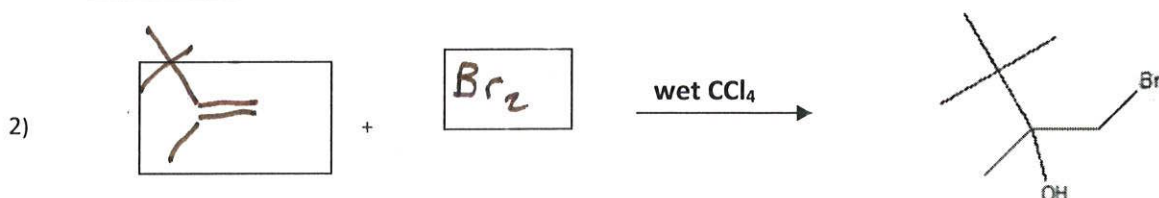
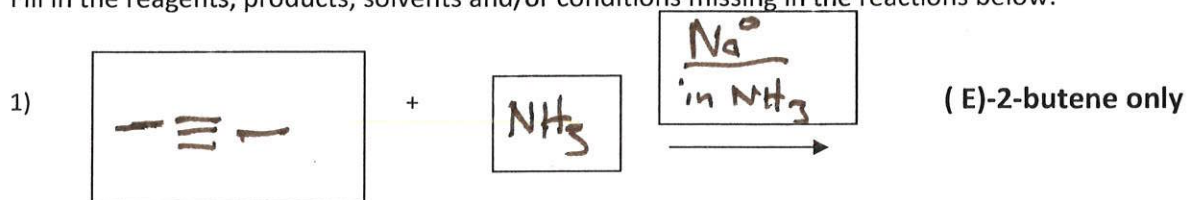
b) Predict all the possible alkenes possible (= can form) from the reaction below and **CIRCLE** the major product: (4 pts)



3.4 THOSE HATEFUL, HATEFUL LITTLE BOXES (58 pts/ 1 pt each)

p 2/4

Fill in the reagents, products, solvents and/or conditions missing in the reactions below:

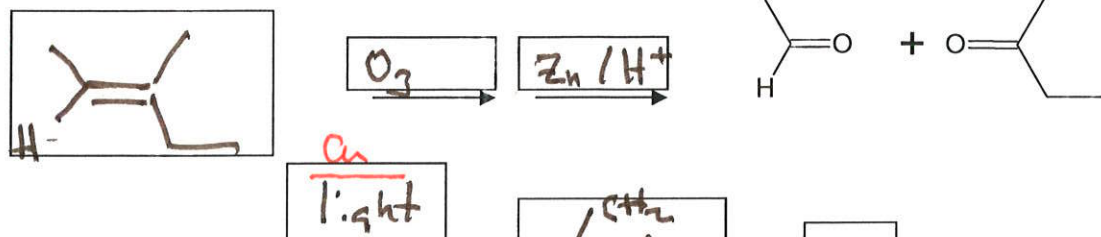


3.4 Hateful boxes (continued)

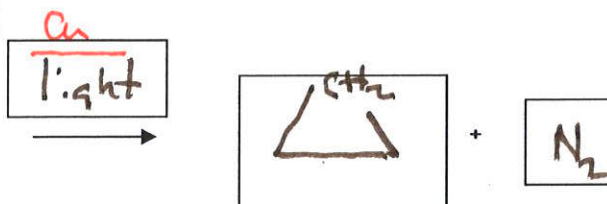
10)



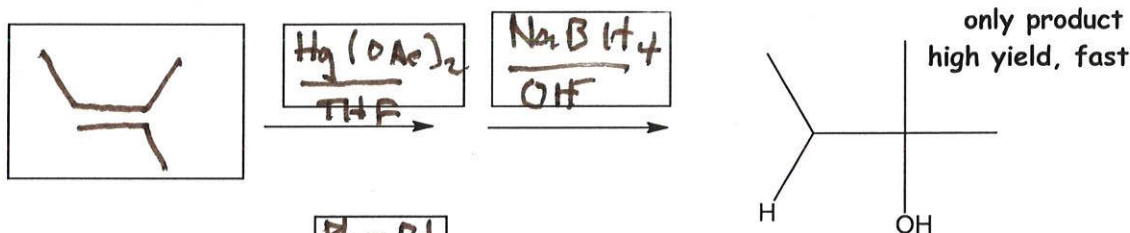
11)



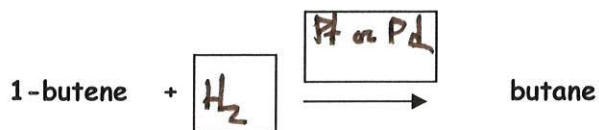
12) CH_2N_2 + ethene



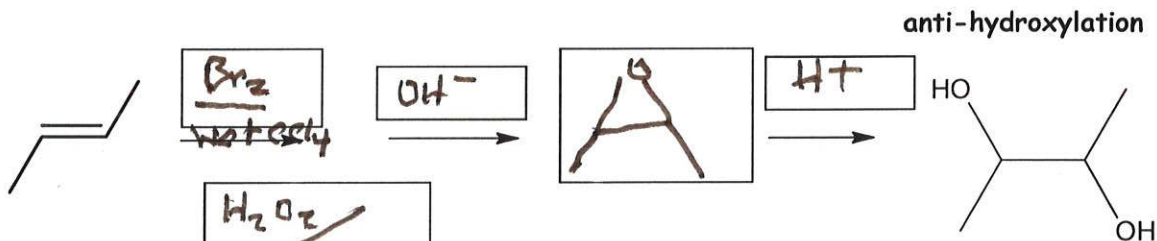
13)



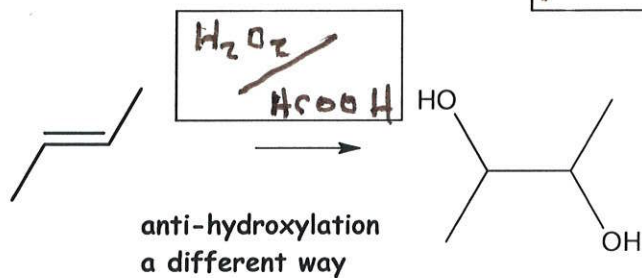
14)



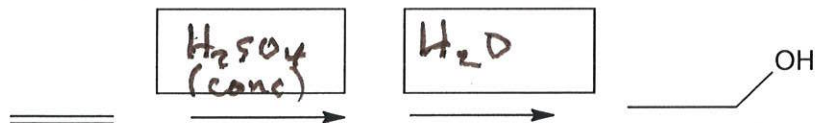
16)



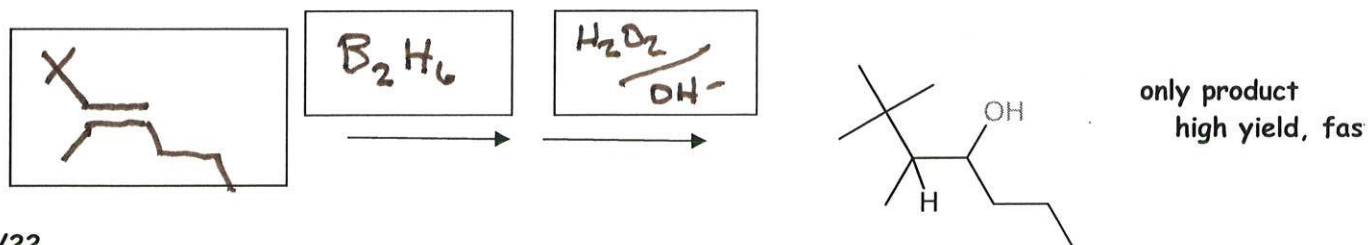
17)

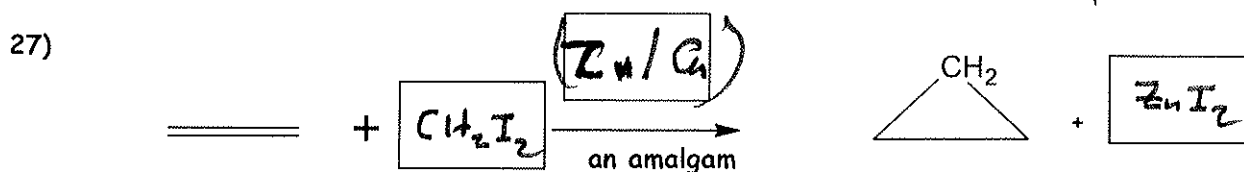
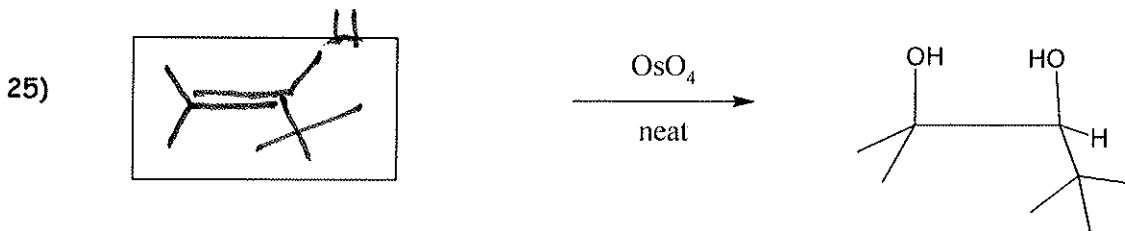
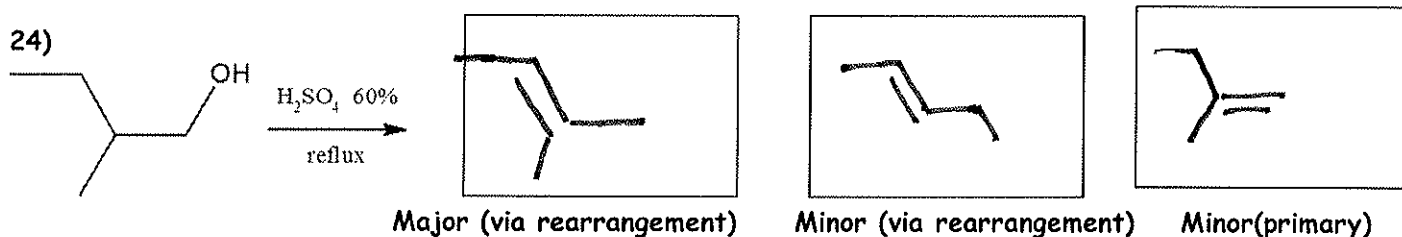
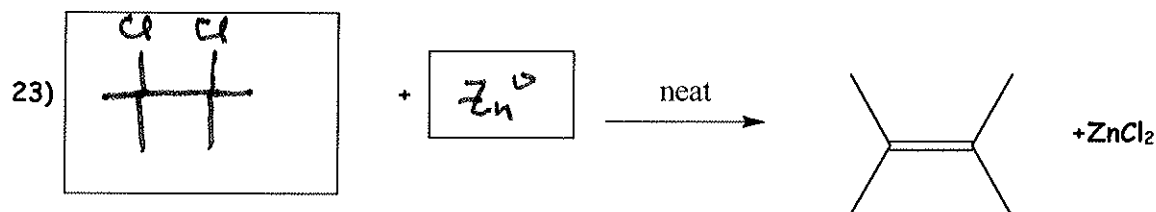
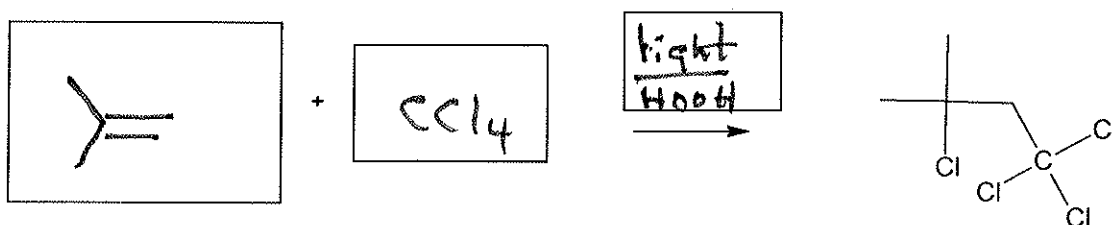
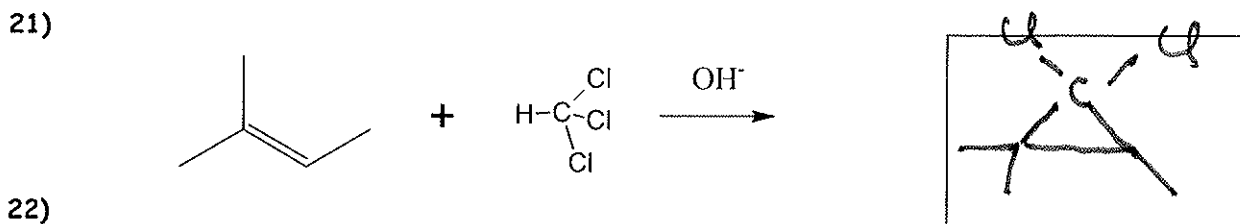
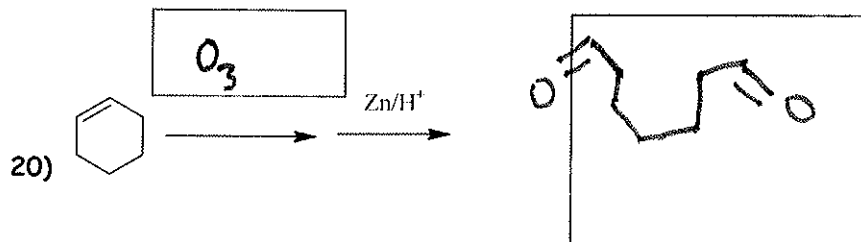


18) industrial route to ethanol



19)





28) hyphenated name of reaction 27 ??? Simmons-Smith

29) T/F (circle your answer)

Any day doing organic chemistry is a good day

T

F

eat shit and die, Fong