

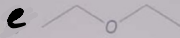
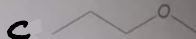
# Organic Chimestry

## Chapter 7 test bank

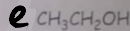
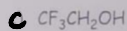
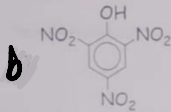
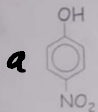
**written by: nadeen khataybeh**



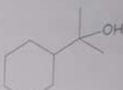
1) Which of the following molecules would have the highest boiling point?



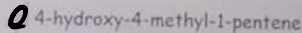
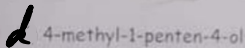
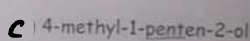
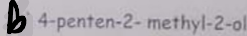
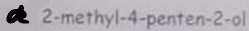
2) Which of the following is the strongest acid?



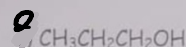
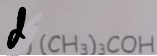
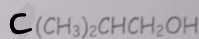
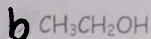
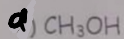
3) Which of the following is a secondary (2°) alcohol?



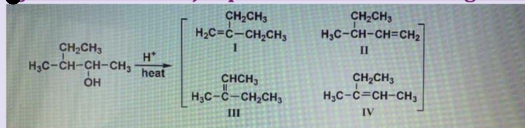
4) What is the correct IUPAC name for  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}=\text{CH}_2$  ?



5) Which of the following alcohols would react most rapidly under  $\text{S}_{\text{N}}1$  conditions?



6) Which is the major product of the following reaction?



A. III

B. II

C. I

D. IV

7) Which reaction will give a ketone?

- A. Tert - pentyl alcohol + CrO<sub>3</sub>/ H<sup>+</sup>
- B. 1- pentanol + PCC
- C. Phenol + PCC
- D. 2- Methyl-2-pentanol + CrO<sub>3</sub> / H<sup>+</sup>
- E. 3-Pentanol + CrO<sub>3</sub>/ H<sup>+</sup>

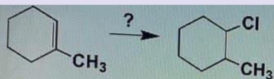
8) Which of the following compounds is the weakest acid?

- A. 2-chlorophenol
- B. 2,2-dichloropropanol
- C. n-propyl alcohol
- D. 2,4-dinitrophenol
- E. 2- chloroethanol

9) Which alcohol undergoes dehydration fastest?

- A. Sec-butyl alcohol
- B. Cyclohexanol
- C. Cyclopentanol
- D. Tert-butyl alcohol
- E. n-butyl alcohol

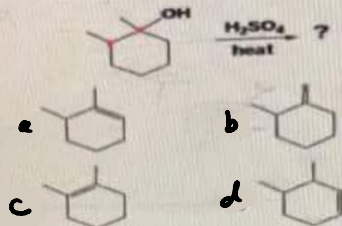
10) Which reaction conditions will achieve the following conversion ?



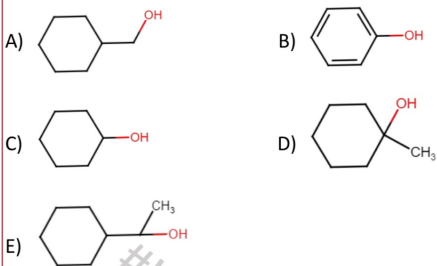
- a. 1) PCl<sub>3</sub> ; then H<sub>3</sub>O<sup>+</sup>
- b. 1) H<sub>2</sub>O/H<sup>+</sup>; then HCl
- c. 1) H<sub>2</sub>O/H<sup>+</sup>; 2) CrO<sub>3</sub>/H<sup>+</sup>; then HCl
- d. 1) PCC ; then HCl/ZnCl<sub>2</sub>
- e. 1) BH<sub>3</sub>; 2) H<sub>2</sub>O<sub>2</sub>/HO<sup>-</sup>; then SOCl<sub>2</sub>

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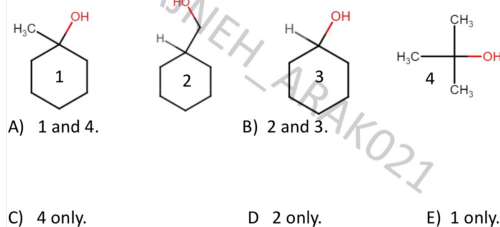
What is the major product of this reaction?



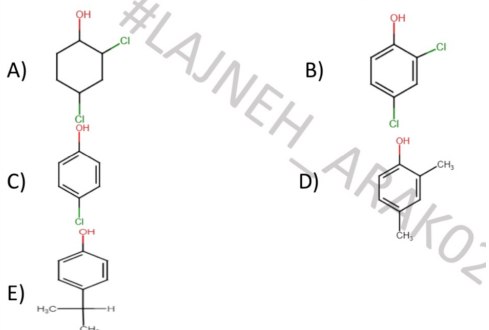
12. Which compound yields an alkyl halide fastest upon reaction with HCl?



13. Which alcohol(s) would undergo oxidation with  $\text{CrO}_3/\text{H}^+$ ?

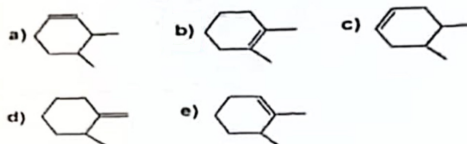
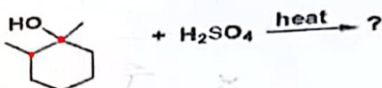


14. Which of the following is the strongest acid?



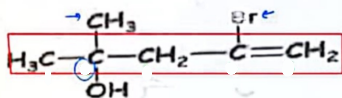
15

Which is the major product of this reaction?



16

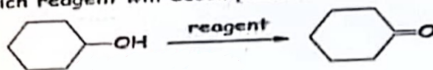
What is the IUPAC name of this molecule?



- a) 4-bromo-2-hydroxy-2-methylpentane  
b) 4-methyl-2-bromopenten-4-ol  
c) 4-bromo-2-methyl-4-penten-2-ol  
d) 4-bromo-1,1-dimethyl-1-butanol  
e) 2-bromo-4-methyl-1-penten-4-ol

17

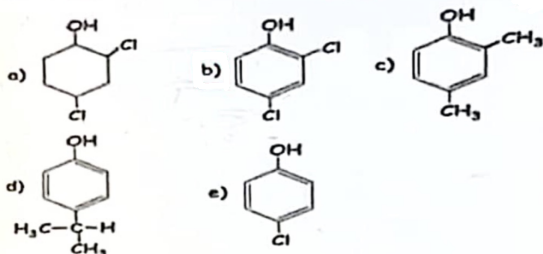
Which reagent will accomplish the following?



- a)  $\text{PBr}_3$   
b)  $\text{SOCl}_2$   
c)  $\text{CrO}_3/\text{H}^+$   
d)  $\text{H}_2\text{SO}_4/\text{heat}$   
e)  $\text{NaOC}_2\text{H}_5$

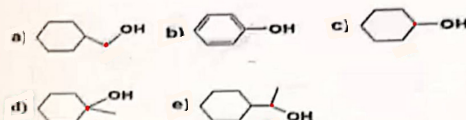
18

Which of the following is the strongest acid?

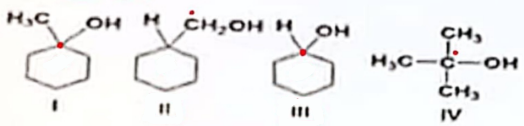


19

Which compound yields an alkyl halide fastest upon reaction with HCl?



20 Which alcohol(s) would undergo oxidation with  $\text{CrO}_3/\text{H}^+$

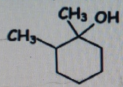


- a) I and IV      b) II and III      c) IV only  
 d) II only      e) I only

21 Which compound listed below is a tertiary alcohol?

- a)  $\text{CH}_3\text{C}(\text{CH}_3)_2\text{CH}_2\text{OH}$       b)  $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$   
 c)  $\text{CH}_3\text{C}(\text{CH}_3)(\text{OH})\text{CH}_3$       d)  $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$   
 e)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$

22 What is the major product from the E1 dehydration of the following alcohol

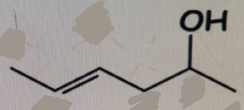


- a)      b)      c)      d)      e)

23 The correct order of increasing acidity is ?

- a)  $\text{CF}_3\text{CH}_2\text{OH} > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{HO}-\text{C}_6\text{H}_5 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2$   
 b)  $\text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{HO}-\text{C}_6\text{H}_5 > \text{CF}_3\text{CH}_2\text{OH} > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2$   
 c)  $\text{HO}-\text{C}_6\text{H}_5 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{CF}_3\text{CH}_2\text{OH}$   
 d)  $\text{CF}_3\text{CH}_2\text{OH} > \text{HO}-\text{C}_6\text{H}_5 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2$   
 e)  $\text{HO}-\text{C}_6\text{H}_5 > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2 > \text{CF}_3\text{CH}_2\text{OH} > \text{HO}-\text{C}_6\text{H}_4-\text{NO}_2$

24 The correct IUPAC name for the following molecule is

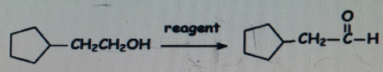


- a) trans-4-hexen-2-ol  
 b) cis-5-hexen-2-ol  
 c) cis-2-hexen-5-ol  
 d) 1-methyl-3-penten-2-ol  
 e) 5-hydroxyl-2-hexene

25 Which is the best synthetic route to prepare  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$

- I)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3 + \text{HBr} \longrightarrow$   
 II)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH} + \text{PBr}_3 \longrightarrow$   
 III)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH} + \text{NaBr} \longrightarrow$   
 IV)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH} + \text{Br}_2 \longrightarrow$   
 a) II only      b) I only      c) IV only  
 d) III and IV only      e) I and II only

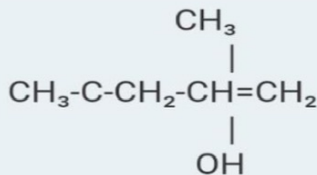
26 Which reagent will accomplish the following transformation?



- a)  $\text{H}_2 / \text{Pd}$       b)  $\text{Na} / \text{CH}_3\text{OH}$   
 c) PCC      d)  $\text{SOCl}_2$   
 e)  $\text{CrO}_3, \text{H}_2\text{SO}_4$

27-The correct name for this molecule:

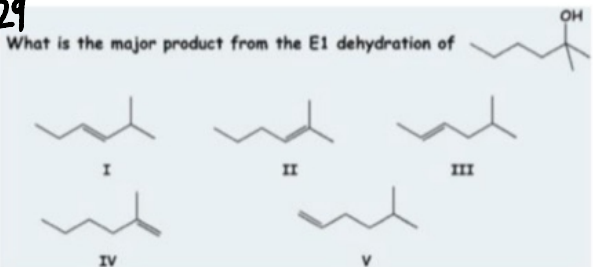
- A) penten-2-methyl-2-ol-4
- B) methyl-1-penten-2-ol-4
- C) hydroxy-4-methyl-1-penten-4
- D) methyl-4-penten-2-ol-2
- E) methyl-1-penten-4-ol-4



28-which of the following alcohols would react most rapidly under SN1 conditions

- A)  $(\text{CH}_3)_2\text{CHCH}_2\text{OH}$
- B)  $\text{CH}_3\text{CH}_2\text{OH}$
- C)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- D)  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{OH}$
- E)  $(\text{CH}_3)_3\text{COH}$

29



- A) I
- B) II
- C) III
- D) IV
- E) V

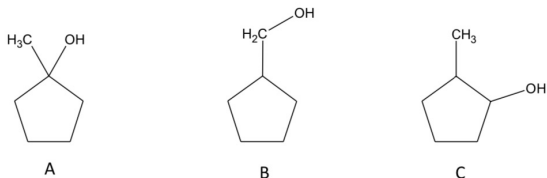
30: Which of the following phenols

is the most acidic?

- a. 2,4,6-trimethylphenol
- b. 2,4-dimethylphenol
- c. p-tert-butylphenol
- d. 2,4-dichlorophenol
- e. 3-chlorophenol

31

Arrange following alcohols in order of their decreasing reactivity with HBr



- A) A > B > C
- B) A > C > B
- C) C > A > B
- D) B > C > A

32: Which of the following alcohols doesn't react with  $\text{PBr}_3$  and  $\text{SOCl}_2$

- A) Primary alcohol
- B) Secondary alcohol
- C) Tertiary alcohol
- D) Methanol

33 1-Butanethiol,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{SH}$ , is produced by the reaction of 1-bromobutane with

- A)  $\text{SH}^-$
- B)  $\text{CH}_3\text{OH}$
- C)  $\text{CH}_3\text{S}^-$
- D)  $\text{CH}_3\text{O}^-$

34

-The rate-determining step in the following reaction is

- A) Ionization of alcohol to give carbocation
- B) Displacement of water from the protonated alcohol by bromide ion
- C) Protonation of alcohol
- D) Capture of a carbocation by bromide ion
- E) Loss of water from the protonated alcohol to give a carbocation



1 → b  
2 → b  
3 → b  
4 → a  
5 → d  
6 → d  
7 → e  
8 → c  
9 → d  
10 → e  
11 → c  
12 → d  
13 → b  
14 → b  
15 → b  
16 → c  
17 → c  
18 → b  
19 → d  
20 → b  
21 → c  
22 → a  
23 → b

24 → a  
25 → a  
26 → c  
27 → e  
28 → e  
29 → b  
30 → d  
31 → b  
32 → c  
33 → a  
34 → e