

King Saud University
College of Science
Chemistry Department



Second Midterm Exam, Chem 145.

Time Allowed 1.5 hour

(2-7-1435)

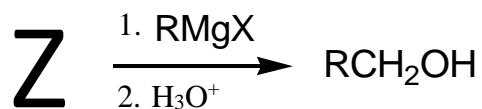
Student name:

Student number:

ملاحظة هامة: ستكون الإجابة الصحيحة بناء علي الإجابة المكتوبة في الجدول أدناه

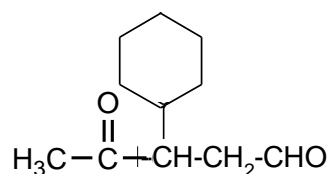
الإجابة	رقم السؤال	الإجابة	رقم السؤال
B	16	C	1
C	17	C	2
C	18	C	3
D	19	A	4
D	20	D	5
A	21	A	6
A	22	D	7
D	23	A	8
B	24	D	9
B	25	D	10
B	26	B	11
D	27	C	12
A	28	D	13
C	29	C	14
A	30	B	15

1) In the following general equation, the reagent (Z) must be



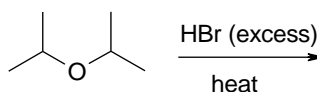
- A) Acetone B) Methanol C) Formaldehyde D) Acetaldehyde

2) What is the correct name of the following compound?



- A) 3-Cyclohexyl-4-one-1-pentanal B) 3-Cyclohexyl-2-oxo-5-pentanal
 C) 3-Cyclohexyl-4-oxopentanal D) 3-Cyclohexyl-4-ketopentanal

3) Predict the products of the following reaction

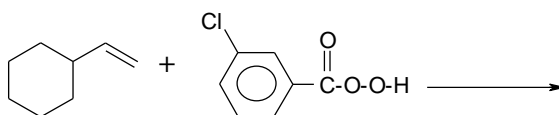


- A) B) 2 + H₂O
 C) 2 + H₂O D) +

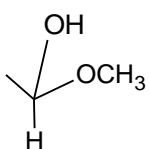
4) Oxidation of secondary alcohol yields

- A) Ketone B) Carboxylic acid C) Aldehyde D) Epoxide

5) What is the product of the following reaction? **D**

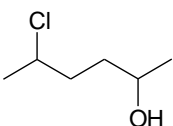
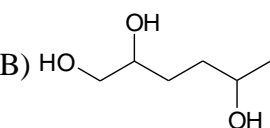
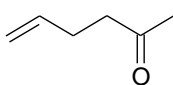
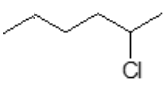


- A) B) C) D)

6) The structure  is

- A) Hemiactal B) Ketal C) Acetal D) Hemiketal

7) The resulting product from the reaction  is

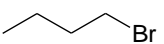
- A)  B)  C)  D) 

8) Which of the following statement about compounds (1) and (2) is false?

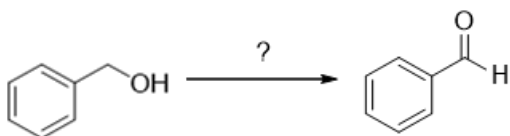


- A) (1) is less soluble in water than (2) B) (1) can be easily oxidized than (2)
 C) (1) has higher boiling point than (2) D) (1) and (2) are isomers

9) What is the product of the following reaction? 

- A)  B) 
 C)  +  D) 

10) What reagent is needed to accomplish the following transformation?

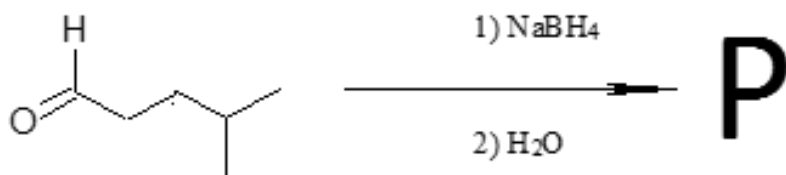


- A) $K_2Cr_2O_7$ B) $LiAlH_4$
 C) $KMnO_4$ D) PCC

11) Ozonolysis of 2-methyl-2-butene results in the formation of

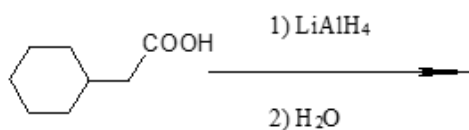
- A) Dialdehyde
B) One aldehyde and one ketone
C) Two aldehydes
D) Two ketones

12) What is the product (P) of the following reaction?



- A) 4-Methylpentane
B) 2-Methylpentane
C) 4-Methyl-1-pentanol
D) 4-Methyl-2-pentene

13) The reaction



gives

- A) B) C) D)

14) Which of the following statements about aldehydes is false?

- A) Can react with ammonia
B) Can be formed by oxidation of primary alcohol
C) Can react with ketone to give acetal
D) Can be oxidized to carboxylic acid

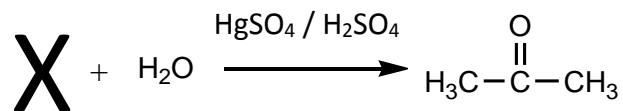
15) The most acidic compound is

- A) B) C) D)

16) The structure of ethyl isopropyl ether is

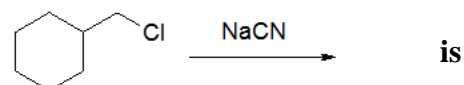
- A) B) C) D)

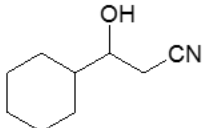
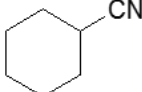
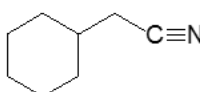
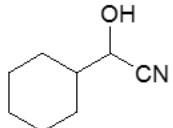
17) What is the starting material (X) used in the following reaction?



- A) Propene B) 2-propanol C) Propyne D) 1-propanol

18) The product of the following reaction

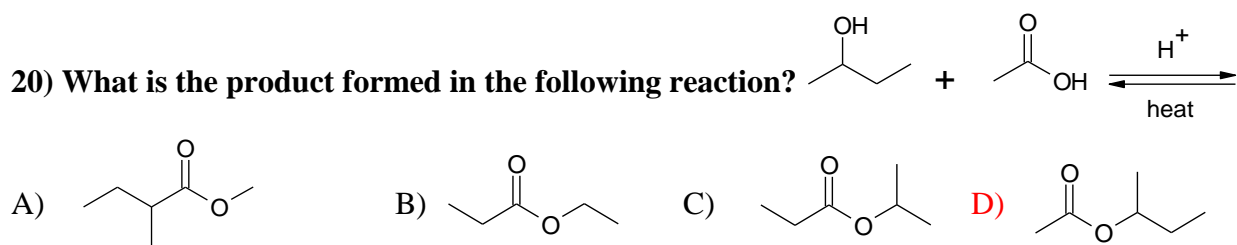


- A)  B)  C)  D) 

19) Methyl vinyl ketone is the common name of

- A) 2-Buten-3-one B) 1-Buten-2-one
C) 1-Buten-3-one D) 3-Buten-2-one

20) What is the product formed in the following reaction?



21) Nucleophilic addition of ammonia to aldehydes and ketones results in the formation of

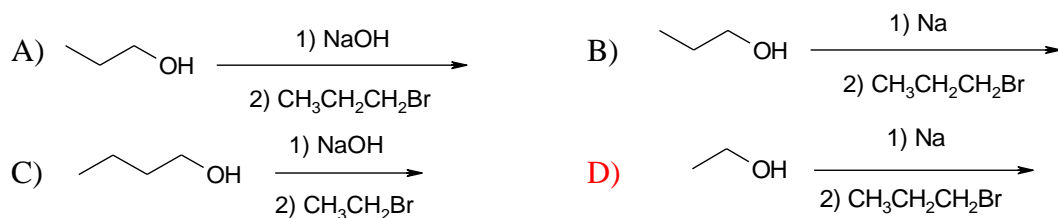
- A) Imine B) Oxime C) Hydrazine D) Hydrazone

22) The correct IUPAC name of the following structure



- A) 4,6-Dimethyl-2-heptenal B) 5-Isopropyl-4-methyl-2-pentenal
C) 2,4-Dimethyl-5-heptanal D) 2,4-Dimethyl-5-heptenal

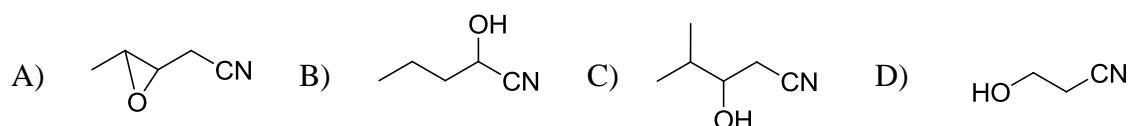
23) Which one of the following reactions gives propyl ethyl ether?



24) Two molecules (X, Y) have the same chemical formula C_2H_6O but the boiling point of X is higher than Y, So the compound Y is

- A) Ethene B) Methoxy methane C) Ethanal D) Ethanol

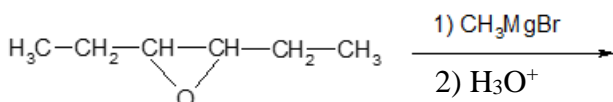
25) Which of the following compounds is a cyanohydrin?



26) The carbonyl-O-atom in aldehydes and ketones can be attacked by

- A) O-atom of water B) Electrophile
- C) Nucleophile D) Anion

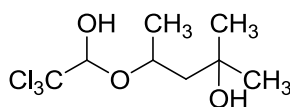
27) The following reaction



yields

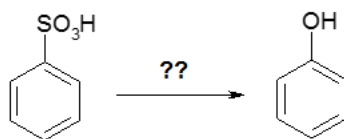
- A) 3-Methyl-4-hexanol B) 4-Ethyl-3-hexanol
- C) 4-Methoxy-3-hexanol D) 4-Methyl-3-hexanol

28) Which functional group is **not present** in the following structure?



- A) Hemiketal B) Hemiacetal
- C) Trichloromethyl group D) Tertiary alcohol

29) What reagent is needed to accomplish the following transformation?



A) Na /heat / H_3O^+

B) KMnO_4 / H_3O^+

C) NaOH /heat / H_3O^+

D) $\text{Na}_2\text{Cr}_2\text{O}_7$ /heat / H_3O^+

30) Which of the following compounds **can not** be classified as a secondary halide?

A) 1-Chloro-1-isopropylcyclopentane

B) 2-Bromobutane

C) Cyclohexyl iodide

D) Isopropyl bromide