

جامعة الملك سعود - كلية العلوم - قسم الكيمياء

الامتحان النهائي للفصل الثاني في مقرر ١٤٥ كيم (١٣-٨-١٤٣٦هـ) الزمن: ساعتان

اسم الطالب:- رقم الطالب:- الرقم التسلسلي:-

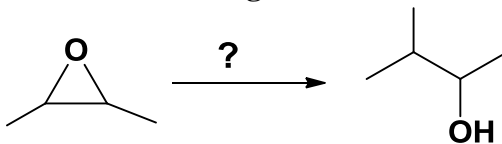
ملاحظة هامة: تصحيح الامتحان سيكون بناء على الإجابة المكتوبة في الجدول

الإجابة	رقم السؤال	الإجابة	رقم السؤال
	21		1
	22		2
	23		3
	24		4
	25		5
	26		6
	27		7
	28		8
	29		9
	30		10
	31		11
	32		12
	33		13
	34		14
	35		15
	36		16
	37		17
	38		18
	39		19
	40		20

1- Hydrolysis of PhMgBr gives

- A) Phenol    B) Benzyl bromide    C) Bromobenzene    D) Benzene

2- What is the reagent needed for the following transformation?

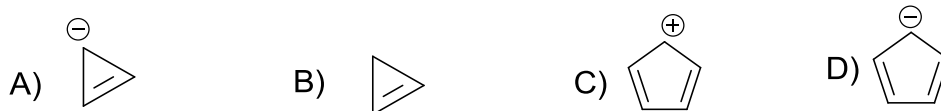


- A)  $\text{CH}_3\text{MgBr} / \text{H}_3\text{O}^+$     B)  $\text{LiAlH}_4 / \text{H}_3\text{O}^+$     C)  $\text{H}_2\text{O} / \text{H}^+$     D)  $\text{CH}_3\text{Br}$

3- The hybridization of the carbons in benzene are

- A)  $sp$     B)  $sp^3$   
C)  $sp^2$     D)  $sp^3d$

4- Which of the following structures is an aromatic?



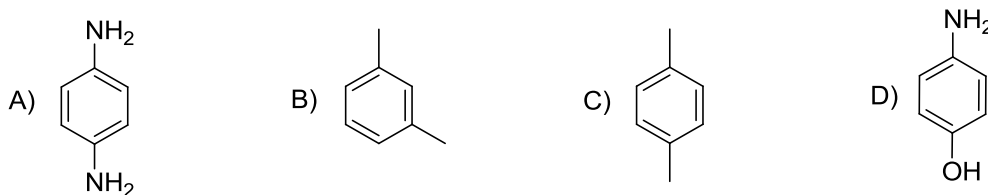
5- Chlorination of toluene in presence of light gives

- A) 1-Chlorotoluene  
B) 2-Chlorotoluene  
C) 1,4-Dichlorotoluene  
D) Benzyl chloride

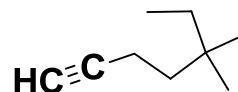
6- Which of the following groups is desactivating in electrophilic aromatic substitution reactions?

- A)  $-\text{OCH}_3$     B)  $-\text{NH}_2$     C)  $-\text{OH}$     D)  $-\text{COOH}$

7- Which of the following compounds has the common name *p*-xylene?

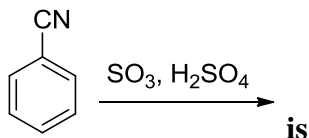


8- What is the correct name for the following compound?



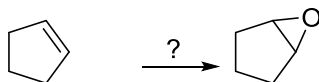
- A) 3,3-Dimethyl-1-heptyne      B) 5,5-Dimethyl-1-heptene  
 C) 5,5-Dimethyl-1-heptyne      D) 5-Ethyl-5-methyl-1-hexyne

9- The product of the following reaction



- A)      B)      C)      D)

10- What is the reagent needed for the following transformation?



- A)      B)      C)      D) O<sub>3</sub>

11- Which of the following compounds will react with water in presence of  $\text{HgSO}_4/\text{H}_2\text{SO}_4$  to give an aldehyde?

- A) Acetylene      B) Propyne  
 C) Ethene      D) Propene

12- The reagent can be used for the transformation of isopropyl alcohol to isopropyl chloride is

- A)  $\text{SOCl}_2$       B)  $\text{FeCl}_3$   
 C)  $\text{PhCH}_2\text{Cl}$       D)  $\text{AlCl}_3$

13- The common name for the following structure  is

- A) Allyl butyl ether.    B) 3-Propoxypropene  
C) Allyl propyl ether    D) Vinyl propyl ether.

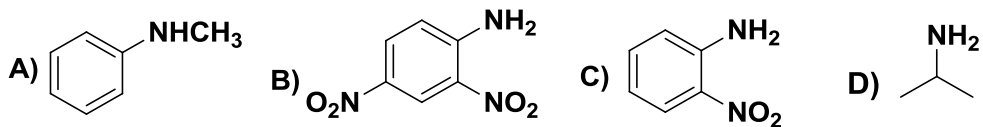
14- The product of the following compound   $\xrightarrow{\text{HI / Heat}}$  ? is

- A) Propyliodide + isopropanol                                  B) Isopropyl iodide + propanol  
C) Isopropyl iodide + isopropanol                              D) Propyl iodide + propanol

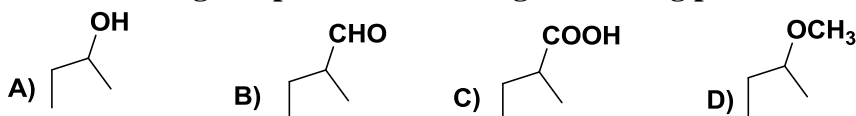
15- Which of the following molecules is non polar?

- A)  $\text{CH}_3\text{-OH}$                           B)  $\text{HCOOH}$                           C)  $\text{CH}_4$                           D)  $\text{CH}_3\text{-NH}_2$

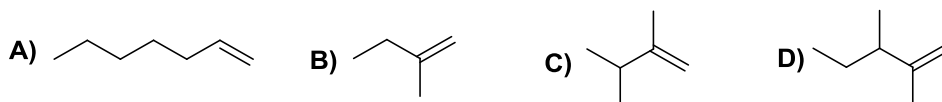
16- The least basic compounds is



17- Which of the following compounds has the highest boiling point?



18- The highest boiling point compound is:



19- The compound which can not exhibit geometrical isomerism:

- A) Cyclohexane    B) 1,2-Dichlorocyclohexane  
C) 2-Butene    D) 2-Pentene

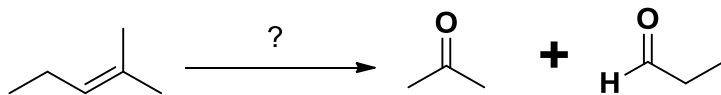
20- How many  $\pi$  electrons are present in this compound  ?

- A) 5                      B) 12                      C) 6                      D) 7

21- The IUPAC name for the following compound  is

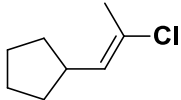
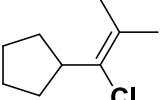
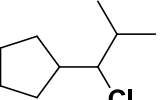
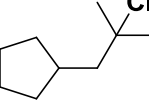
- A) 5-Bromo-2,3-dimethyl-7-nitro-1,4-dioctene  
 B) 5-Bromo-2,3-dimethyl-7-nitro-1,4-octadiene  
 C) 3-Bromo-6,7-dimethyl-2-nitro-4,7-octadiene  
 D) 2,3-Dimethyl-5-bromo-7-nitro-1,4-dioctene

22- What is the best reagent needed for the reaction below?

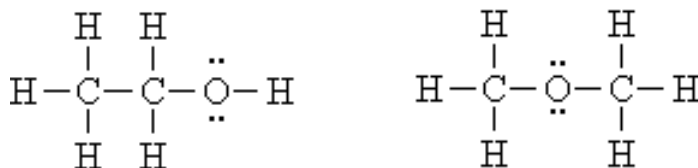


- A)  $O_2/Zn$                       B)  $O_3/Zn$                       C)  $KMnO_4$                       D)  $LiAlH_4$

23- The product of the following reaction  is

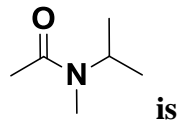
- A)       B)       C)       D) 

24- How are the following compounds related?



- A) Structural isomers                      B) Geometrical isomers  
 C) The same compounds                      D) Both derivatives of carboxylic acid

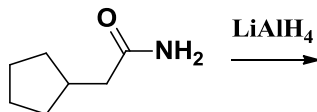
25- The IUPAC name for the following compound



is

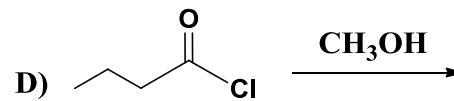
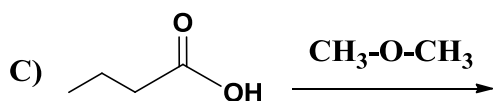
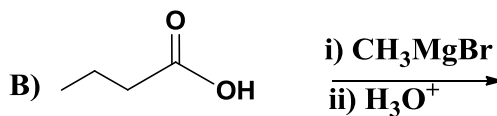
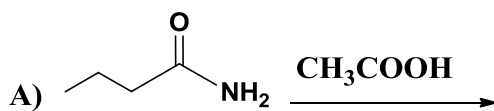
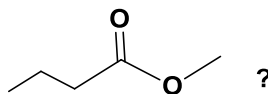
- A) Butylmethylamine                      B) N-Isopropyl-N-methylacetamide  
C) N-Isopropyl-N-methylethanamide    D) Propylmethylacetylamine

26- The product of the following reaction is

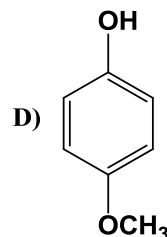
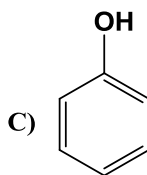
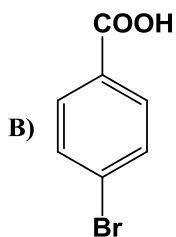
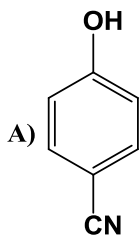


- A)                      B)
- C)                      D)

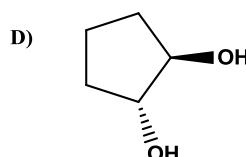
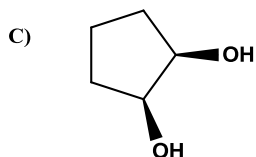
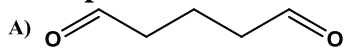
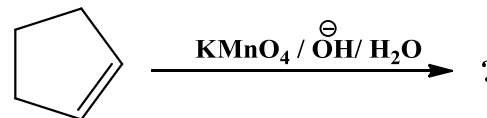
27- Which of the following reaction would be useful to produce the following compound



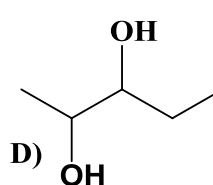
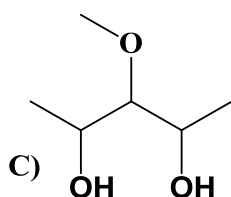
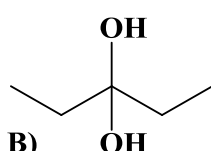
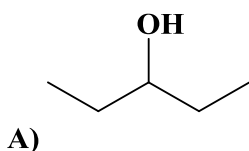
28- The least acidic compounds is



29- What is the product of the following reaction?



30- Which of the following structures is glycol?



31- Reaction of sodium acetate with acetyl chloride gives

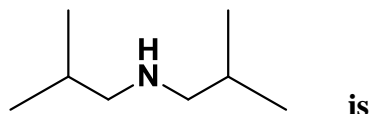
A) Aldehyde

D) Ester

C) Anhydride

D) Hydroxy acid

32- The common name for the structural formula



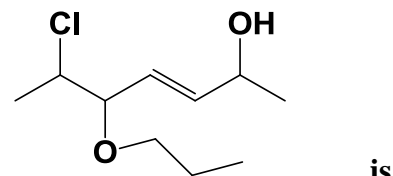
A) *tert.*Butylisobutylamine

B) Isopropylpropylamine

C) *tert.*Butylpropylamine

D) Diisobutylamine

33- The correct IUPAC name for the following compound



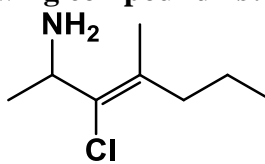
A) 6-Chloro-5-propoxy-3-hepten-2-ol

B) 2-Chloro-6-hydroxy-5-methoxy-4-heptene

C) 2-Chloro-5-propoxy-4-hepten-6-ol

D) 1-Chloro-1-methyl-2-propoxy-3-hexen-5-ol

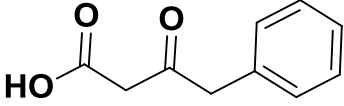
34- The IUPAC name for the following compound is?



- A) 3-Chloro-4-methyl-3-hepten-2-amine
- B) 2-Chloro-1,3-dimethyl-2-hexen-1-amine
- C) 5-Chloro-4-methyl-4-hepten-6-amine
- D) 5-Chloro-4,6-dimethyl-4-hexen-6-amine

35- Which of the following compounds is considered as acetal?

- A) 1,2- Dimethoxy propane
- B) 2,2-Dimethoxypropane
- C) 2-Methoxy-2-propanol
- D) 1,3-Dimethoxypropane

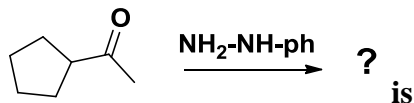
36- The IUPAC name for the following structure  is:

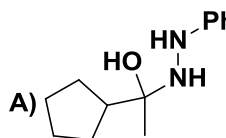
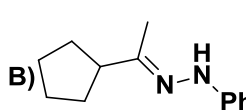
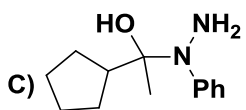
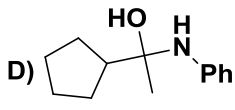
- A) 3-Benzyl-3-oxo-propanoic acid
- B) 1-Phenyl-2-oxo-butanoic acid
- C)  $\beta$ -Oxo- $\gamma$ -Phenyl-butanoic acid
- D) 3-Oxo-4-Phenylbutanoic acid

37- Which one of the following compounds react with acetaldehyde to produce an imine?

- A)  $\text{CH}_3\text{NH}_2$
- B)  $\text{NaNH}_2$
- C)  $\text{PhN}_2^+\text{Cl}^-$
- D)  $\text{NH}_2\text{OH}$

38- The product of the following reaction



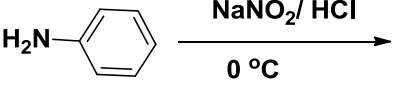
- A) 
- B) 
- C) 
- D) 

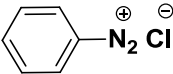
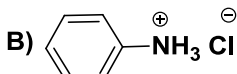
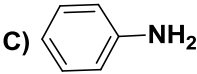
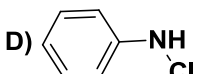


39- The main reaction of carbonyl in aldehydes and ketons is

- A) Electrophilic substitution.      C) Electrophilic addition.  
B) Nucleophilic substitution.      D) Nucleophilic addition.

40- The product of the following reaction is

 Nc1ccc(cc1) >> [NaNO2][HCl], 0 °C

- A)  [N+]#Nc1ccccc1.[Cl-]      B)  [NH3+]c1ccccc1.[Cl-]      C)  Nc1ccccc1      D)  Nc1ccccc1Cl