



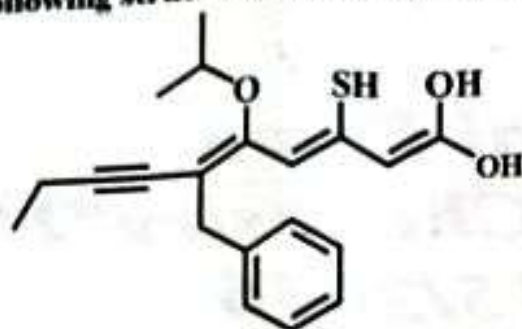
Final Exam Organic Chemistry "1" 2015/2016

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إسم مدرس المادة: _____

كتابة الاسم باللغة العربية
Student's name: _____
Student's No.: _____

Q1] Name the following structure according to the IUPAC system of nomenclature



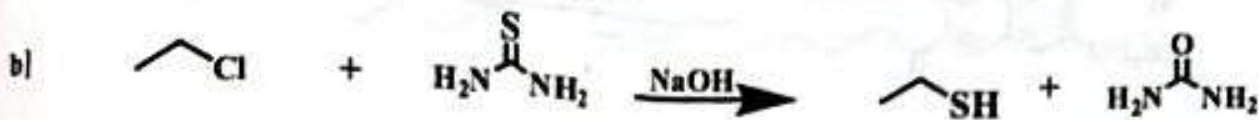
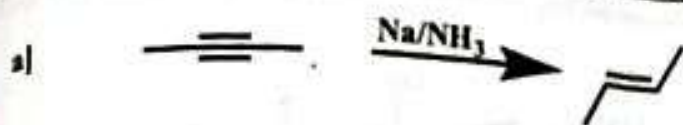
Q2] Provide the correct structure for the following given name

(E)-2,3-Epoxy-5-ethoxy-3,6-dimercapto-1-(methylthio)-4-decen-7,9-diyne-1-ol

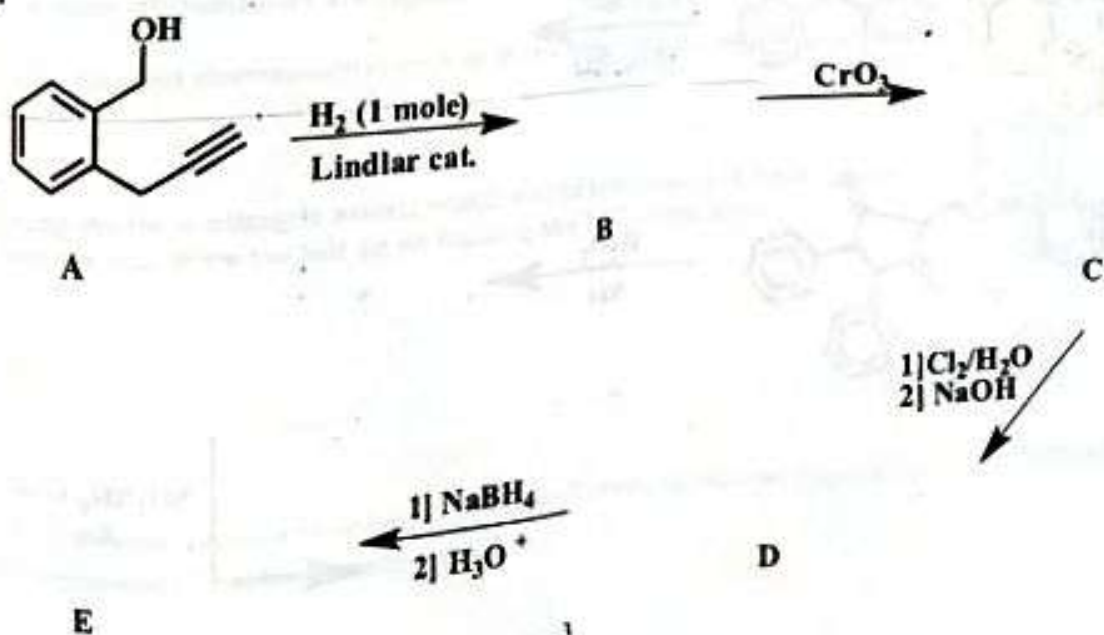
Q3] Fill in the following table according to the main differences between S_N1 and S_N2

Comparison Elements	S_N1	S_N2
Alkyl halide		
Rate of the reaction		
Intermediate		
Stereochemistry of the product		

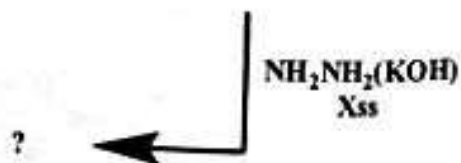
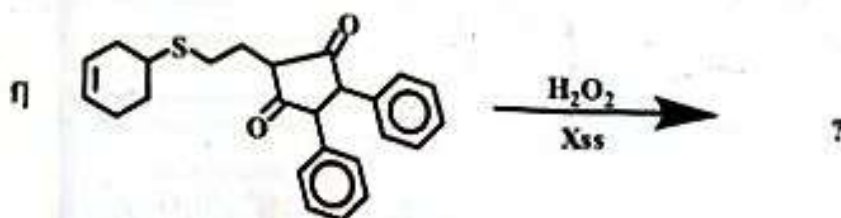
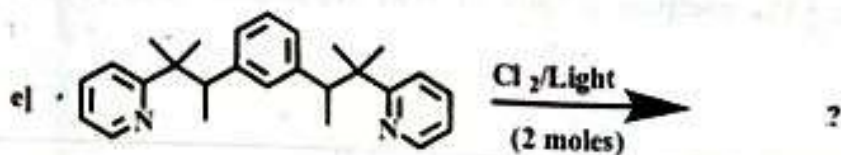
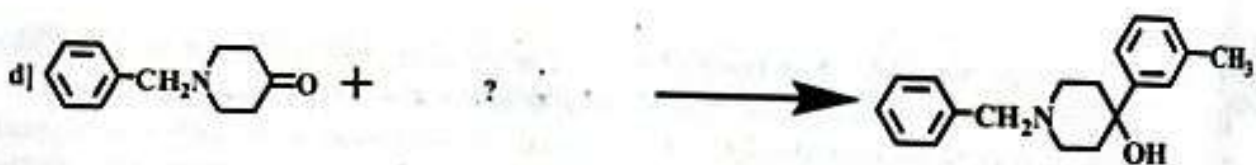
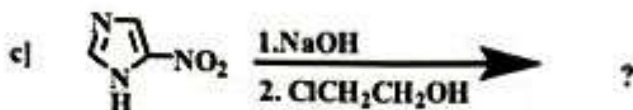
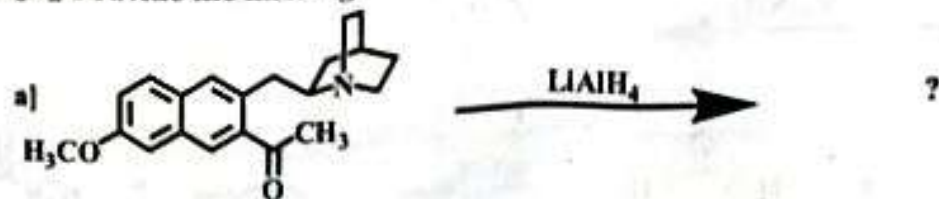
Write a clear step-wise mechanism for ONLY ONE of the following two reactions.



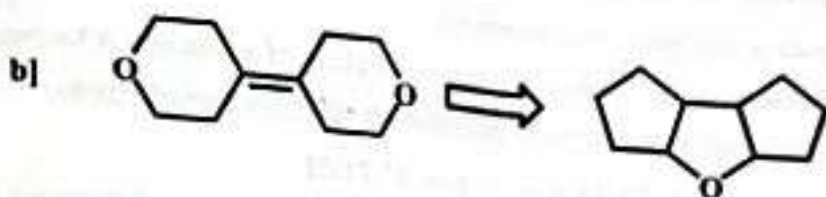
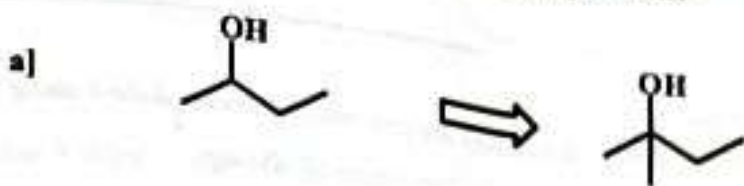
The given compound "A" was treated with [1 mole of H_2 /Lindlar catalyst] to provide the compound "B", which then was oxidized using CrO_3 affording the compound "C". Then C was heated with H_2O/Cl_2 followed by treatment with sodium hydroxide affording the compound "D" which was then treated with $NaBH_4$ followed by adding few drops of H_3O^+ affording the compound "E". Identify the structures B, C, D and E?



Q6] Provide the missing



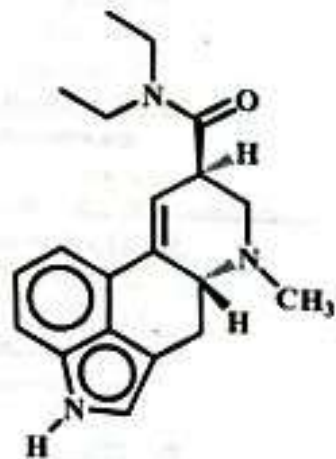
How the following two conversions might be accomplished?



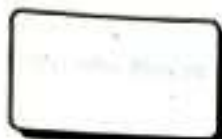
8] Regarding to the hallucinogenic drug; Lysergic acid diethylamide "LSD".

- Assign R and S configuration for the two chiral centers (draw on the structure).....
- How many stereoisomers are expected for this drug?.....
- Assign the most electropositive carbon in the compound. Justify your choice

➤ Among the three nitrogen atoms; which would you expect to be the most basic; for that draw the salt up on treating the LSD with HCl



➤ Which is better reagent to reduce the carbonyl group to the corresponding CH_2 ; Wolff-Kischner or Clemmensen? Explain briefly



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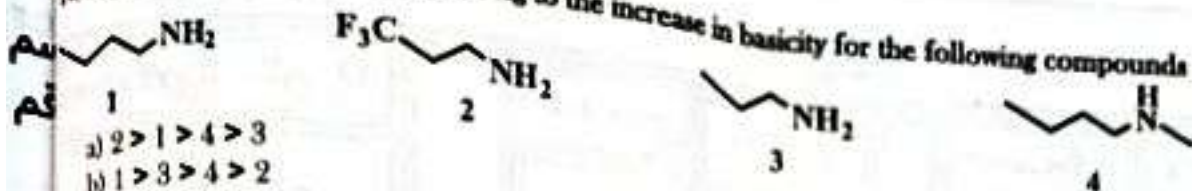
Q10] True or False (✓ or X)

- a | | Halogenation of allylic or benzylic system can be accomplished using NBS
- b | | As general; E1 and E2 lead to the formation of alkenes
- c | | Amines are less acidic than thiols
- d | | All keto-form compounds are able to undergo tautomerization
- e | | Ethoxide is less basic than phenoxide
- f | | A compound with 2 chiral centers and a plane of symmetry is known as meso compounds
- g | | Sulfoxide is an advanced state of oxidation compared with sulfone
- h | | Dehydration of 3° ROH is easier than 1° ROH
- i | | Markovnikov rule depends mainly on the carbocation intermediates
- j | | The main function of cyclic ether is Phase Transfer catalyst

Q11] MCQ'S :- Choose the correct answer

- 1) Cyclopropane is more reactive than cyclobutane due to.....
 - a) oxidation state
 - b) steric hindrance
 - c) 1,3-Diaxial interaction
 - d) None of the above
- 2) cyclohexane prefers the Equatorial substituent to the axial one due to.....
 - a) repulsion
 - b) 2,5-diaxial interaction
 - c) 1,3-diaxial interaction
 - d) both b and c
- 3) The acidic hydrolysis of alkene leads to the formation of
 - a) anti-diol
 - b) alcohol
 - c) epoxy alcohol
 - d) alcohol
- 4) Because it depends not only on the concentration of alkyl halide but also on nucleophile concentration the reaction is classified as
 - a) E1
 - b) E2
 - c) S_N2
 - d) none of the above
- 5) The odd compound among the following is.....
 - a) 1,3- heptadiene
 - b) 1,2-butadiene
 - c) 1,4-octadiene
 - d) 1,3- cyclohexadiene
- 6) Cycloaddition reaction is related to.....
 - a) Grignard
 - b) Williamson
 - c) Wurtz
 - d) None of the above
- 7) Grignard reagent has the ability to reduce aldehydes and ketones via.....reaction
 - a) nucleophilic addition
 - b) nucleophilic substitution
 - c) electrophilic addition
 - d) None of the above
- 8) The similarity in both E2 and SN2 from mechanistic view point is
 - a) the transition state
 - b) there is no relation
 - c) the carbocation
 - d) both a and c
- 9) The cis and trans designations are related to
 - a) geometric isomerism
 - b) Z and E concepts
 - c) Optical inactivity
 - d) none of the above

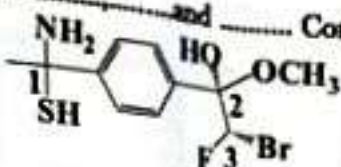
10) The correct arrangement according to the increase in basicity for the following compounds is.....



- a) 2 > 1 > 4 > 3
b) 1 > 3 > 4 > 2

- c) 4 > 1 > 3 > 2
d) none of the above

11) The following has 8 chiral centers with and Configurations



- a) 1R, 2S and 3R
b) 1S, 2R and 3S

- c) 1S, 2R and 3R
d) none of the above

12) When reacts with an alkyl halide, the expected product is amine

- a) KNO_3
b) KCN

- c) NH_3
d) NBS

13) Secondary alcohols can be converted to the corresponding ketone by using

- a) $KMnO_4$
b) CrO_3

- c) MnO_2
d) all of the above

14) reaction is related to reducing aldehydes to alkanes

- a) Wolff-Kishner
b) Clemmensen

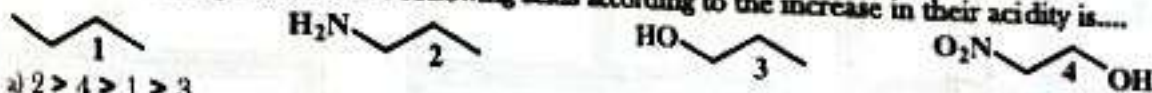
- c) both a and b
d) Williamson

15) Hydronium is more acidic than water due to effect.

- a) charge
b) hybridization

- c) electronegativity
d) all of the above

16) The correct arrangement of the following acids according to the increase in their acidity is....



- a) 2 > 4 > 1 > 3
b) 1 > 3 > 4 > 2

- c) 4 > 3 > 2 > 1
d) 3 > 2 > 1 > 4

17) Halogenation of alkanes through intermediate can be done through using X_2 /Light

- a) carbene
b) free radical

- c) carbocation
d) carbanion

18) Nucleophilic addition reaction using $RMgX$ as a nucleophile fails in the presence of functionality

- a) basic
b) ester

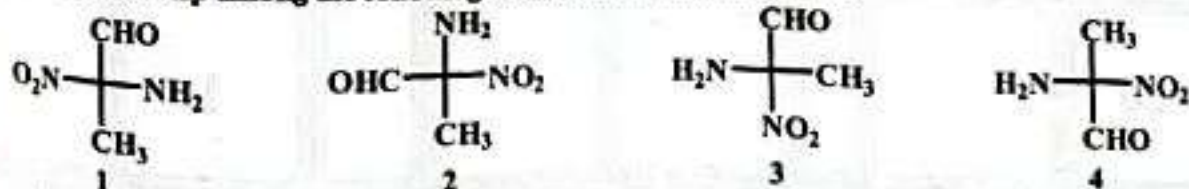
- c) acidic
d) neutral

19) The conformation of alkane arises from

- a) pi bond rotation
b) angle strain

- c) sigma bond rotation
d) 1,3-diaxial interaction

20) The relationship among the following stereoisomers is.....



- a) only 1 and 2 are enantiomers
b) only 2 and 3 are enantiomers

- c) there is no relation
d) all are the same

MCQ'S

(√ Or X)

Q No.	Answer	Q No.	Answer	Q No.	Answer
1		11		a	
2		12		b	
3		13		c	
4		14		d	
5		15		e	
6		16		f	
7		17		g	
8		18		h	
9		19		i	
10		20		j	

مع خالص دعائنا لكم بالتوفيق

د. كنعان الوحيدي

11/5 22.5.2016

أمة أبو محسن

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