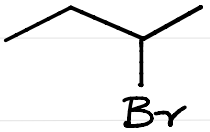
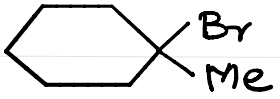
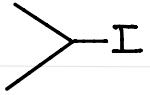
Alcohol(s), Phenol(s), Ether(s) & Glycol(s)

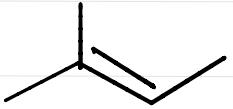
Homework

Identify the products.

1.  $\xrightarrow{H_2O}$ Path : _____

2.  $\xrightarrow{KOH\ aq.}$ Path : _____

3.  $\xrightarrow{NaOH\ aq.}$ Path : _____

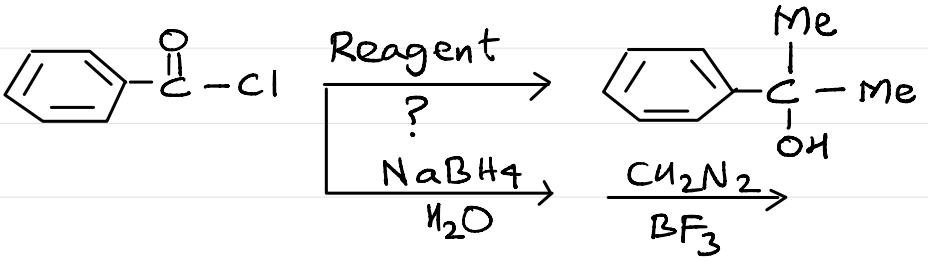
4. 

$\xrightarrow{H^+/D_2O}$

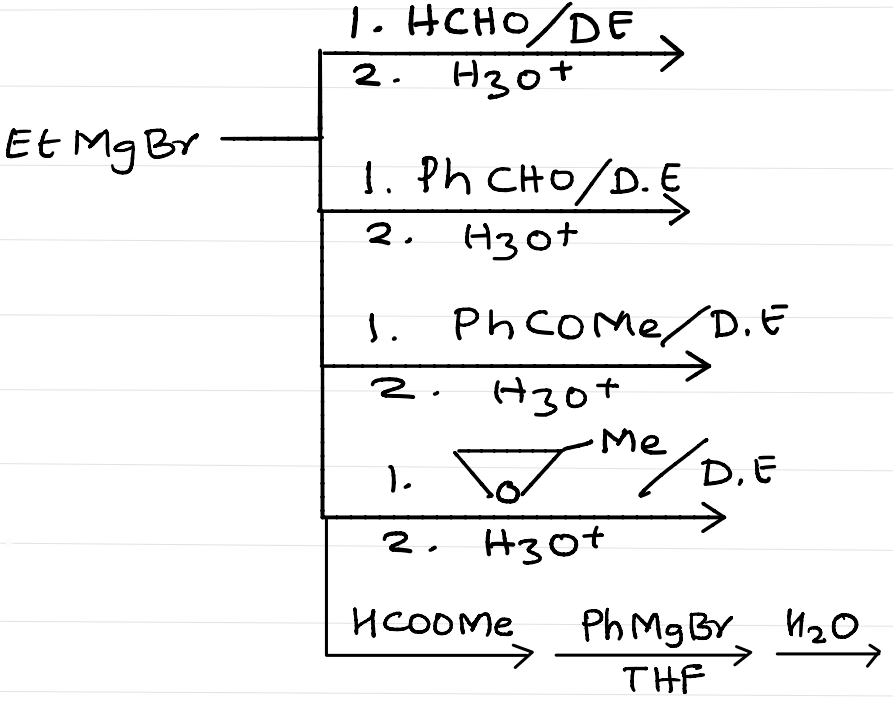
$\xrightarrow[2.\ H_2O_2/\bar{O}H]{1.\ BD_3/THF}$

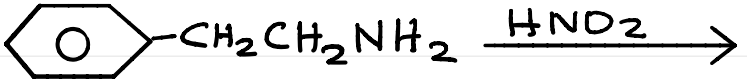
$\xrightarrow[2.\ NaBH_4/\bar{O}H]{1.\ Hg(OAc)_2/THF/D_2O}$

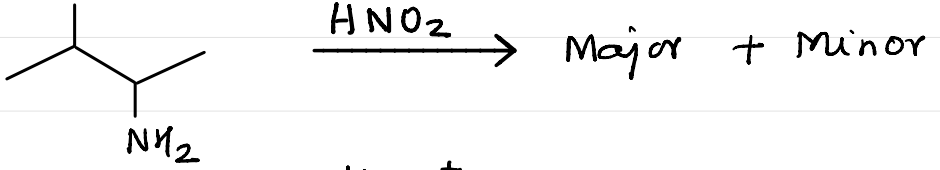
5.


Reagent
?
NaBH4
H2O
CH2N2
BF3
Me
Me
OH

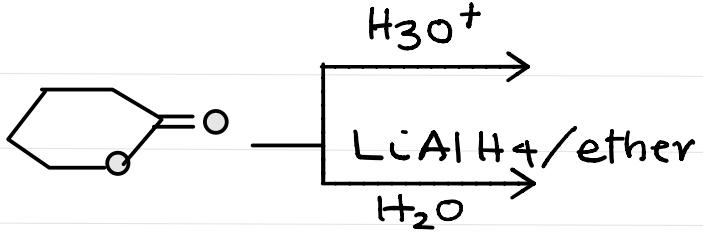
6.

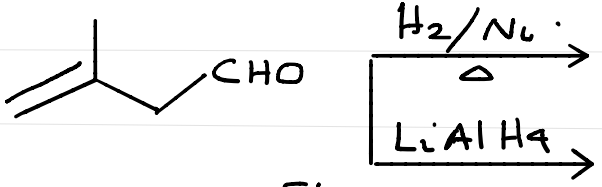

EtMgBr
1. HCHO/DE
2. H3O+
1. PhCHO/D.E
2. H3O+
1. PhCOMe/D.E
2. H3O+
1.
Me
D.E
2. H3O+
HCOOMe
PhMgBr
THF
H2O

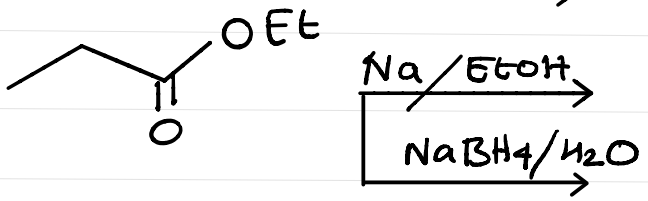
7. 
O
$CH_2CH_2NH_2$
HNO_2

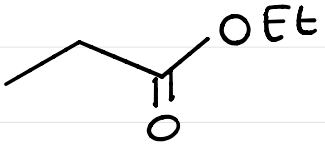
8. 
NH_2
HNO_2
Major + Minor

9. 
O
H_3O^+

10. 
O
H_3O^+
$LiAlH_4$/ether
H_2O

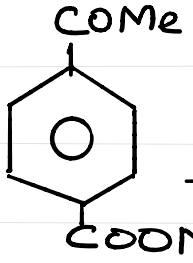
11. 
CHO
H_2/Ni
Δ
$LiAlH_4$

12. 
OEt
O
Na/EtOH
$NaBH_4/H_2O$

13. 

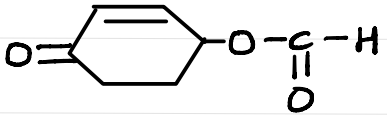
$\xrightarrow{MeMgI}$

$\xrightarrow{H_3O^+}$ A + B

14. 

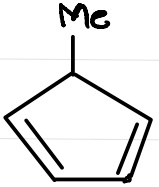
$\xrightarrow{LiAlH_4/ether}$ $\xrightarrow[H_2O]{}$

$\xrightarrow[H_2O]{NaBH_4}$

15. 

$\xrightarrow[H_2O]{NaBH_4}$

$\xrightarrow[H_2O]{LiAlH_4/ether}$

16. 

$\xrightarrow[40^\circ C]{HBr}$ $\xrightarrow[H_2O]{KOH}$

Home Work

45 Minutes

VMC

Oxygen Containing Organic Compounds-I

Based on Preparations:

Q1. Hydroboration oxidation of 4-Methyloct-4-ene would give :

(A) 5-Methyloctan-4-ol **(B)** 4-Methyloctan-4-ol

(C) 4-Methylheptanol **(D)** 4-Methyl-2-octanone

Q2. Which among the following compounds can give a secondary alcohol on reacting with Grignard reagent followed by acid hydrolysis ?

I. HCHO **II.** C_2H_5CHO

III. CH_3COCH_3 **IV.** $HCOOC_2H_5$

Select the correct answer using the codes given below :

(A) II only **(B)** III only **(C)** I and IV only **(D)** II and IV only

Q3. Acid catalysed hydration of alkenes except ethene leads to the formation of :

(A) mixture of secondary and tertiary alcohols

(B) mixture of primary and secondary alcohols

(C) secondary or tertiary alcohol

(D) primary alcohol

Q4. The enzymes which are used to convert starch into ethyl alcohol are :

(A) maltase, diastase **(B)** diastase, maltase, zymase

(C) invertase, zymase **(D)** invertase, diastase, maltase

Q5. Which of the following combinations can be used to synthesise ethanol ?

(A) CH_3MgI and CH_3COCH_3 **(B)** CH_3MgI and C_2H_5OH

(C) CH_3MgI and $CH_3COOC_2H_5$ **(D)** CH_3MgI and HCHO

Q6. In fermentation by zymase, alcohol and CO_2 are obtained from :

(A) invert sugar **(B)** glucose **(C)** fructose **(D)** All of these

Q7. $R-CH=CH-CH_2-CHO \xrightarrow{X} R-CH=CH-CH_2-CH_2OH$

In the above sequence X can be :

(A) H_2 / Ni **(B)** $LiAlH_4$/ether **(C)** $K_2Cr_2O_7$ / H^+ **(D)** Both (A) and (B)

Q8. The alcohol manufactured from water gas is :

(A) CH_3OH **(B)** C_2H_5OH **(C)** CH_3CH_2COOH **(D)** $(CH_3)_2CHOH$

Q9. In the given sequence of reactions :

$CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow[ether]{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$ the compound 'D' is :

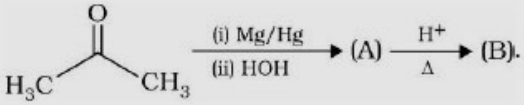
(A) Butanal **(B)** n-Butyl alcohol

(C) n-Propyl alcohol **(D)** Propanal

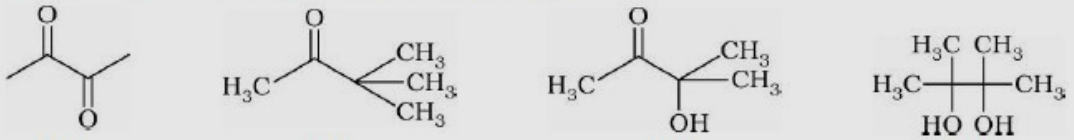
Q10. Which one of the following compounds will not react with CH_3MgBr ?

(A) Ethylacetate **(B)** Acetone **(C)** Dimethylether **(D)** Ethanol

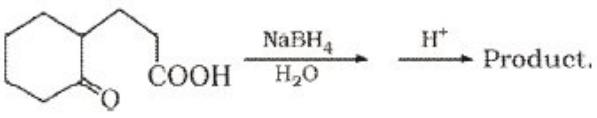
. leave it

Q11. 

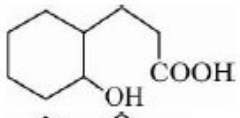
Final product B in above sequence of reaction is :

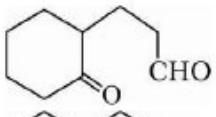


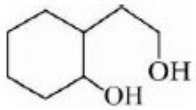
(A) **(B)** **(C)** **(D)**

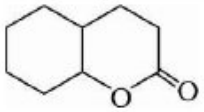
Q12. 

The product is :

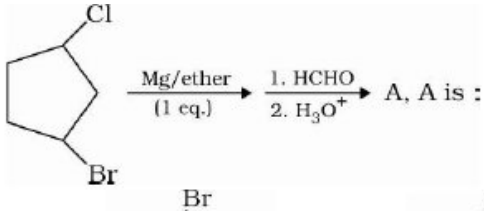
(A) 

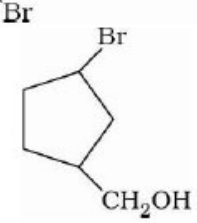
(B) 

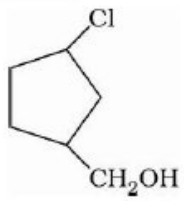
(C) 

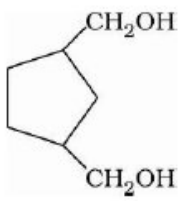
(D) 

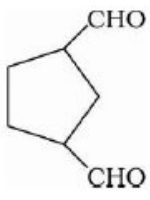
Q13.



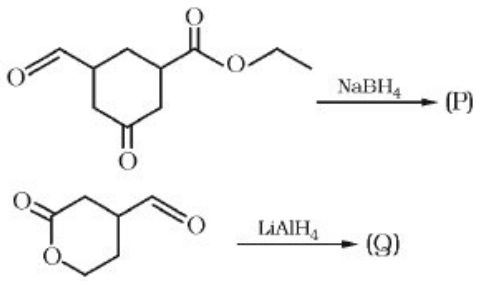
(A) 

(B) 

(C) 

(D) 

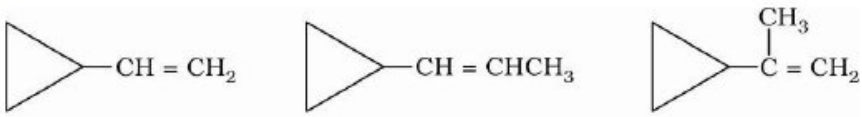
Q14.



Sum of number of alcoholic groups in product (P) and (Q) is :

(A) 1 **(B)** 2 **(C)** 3 **(4)** 5

Q15. Rate of hydration of



will be in order :

(A) I < II < III **(B)** I < III < II **(C)** II < I < III **(D)** III < II < I

Q16. 3-Methyl-3-hexanol can be prepared by :

(A) CH_3MgI and 3-Hexanone, followed by hydrolysis

(B) C_2H_5MgI and 2-Pentanone, followed by hydrolysis

(C) n-Pr-MgI and 2-Butanone, followed by hydrolysis

(D) n-Bu-MgI and Propanone, followed by hydrolysis

Q17. Cyclobutylethene is treated with dil. H_2SO_4 and boiled with water to form :

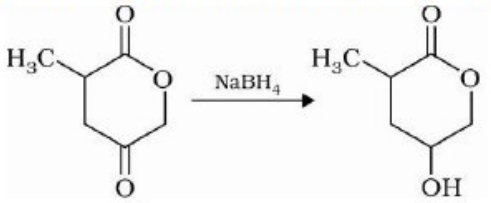
(A) 2-Cyclobutylethanol **(B)** 1-Cyclobutyl-2-ethanol

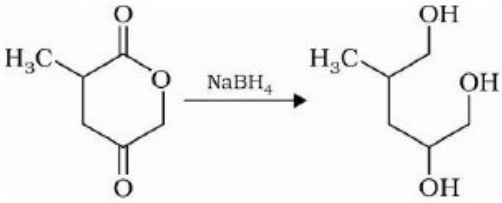
(C) 2-Methylcyclopentanol **(D)** 1-Methylcyclopentanol

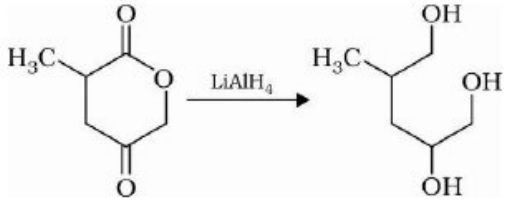
Q18. Which of the following compound(s) gives alcohol on reaction with $LiAlH_4$ / H_2O ?

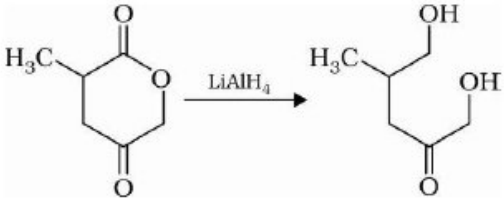
(A) $Me-\underset{\underset{O}{\|}}{C}-Cl$ **(B)** $Me-\underset{\underset{O}{\|}}{C}-NH_2$ **(C)** $Me-CH-CH_2$ (O) **(D)** $Me-\underset{\underset{O}{\|}}{C}-O-\underset{\underset{O}{\|}}{C}-Me$

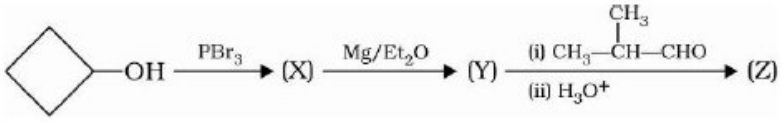
Q19. Which of the following reactions represents the correct product ?

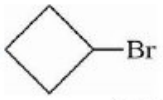
(A) 

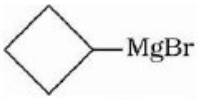
(B) 

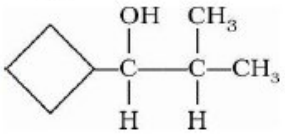
(C) 

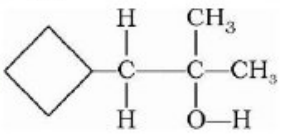
(D) 

Q20. 

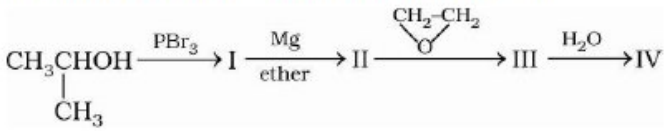
(A) X is 

(B) Y is 

(C) Z is 

(D) Z is 

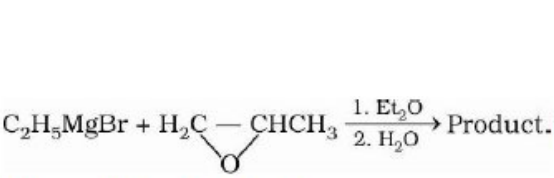
Q21. The final product (IV) in the sequence of reactions is :



(A) $CH_3-\underset{\underset{CH_3}{|}}{CHOCH_2CH_2OH}$ **(B)** $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{OH}{|}}{CH}}CHCH_3$

(C) $CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2CH_2OH$ **(D)** $CH_3-\underset{\underset{CH_3}{|}}{CHOCH_2CH_3}$

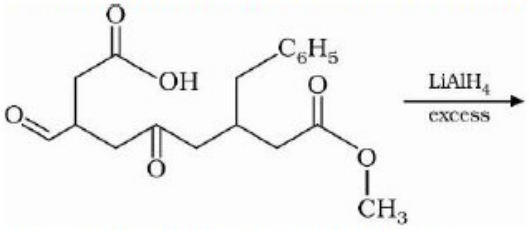
Q22. $C_2H_5MgBr + H_2C\text{—}CHCH_3 \xrightarrow[2.\ H_2O]{1.\ Et_2O}$ Product. The product is :



(A) $CH_2(OH)-CH(CH_3)-C_2H_5$ **(B)** $C_2H_5-CH(OH)-CH_2CH_3$

(C) $C_2H_5-CH_2-CH(OH)-CH_3$ **(D)** $C_2H_5-CH=CH-CH_3$

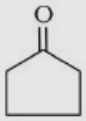
Q23. Which of the following is correct about the given reaction :

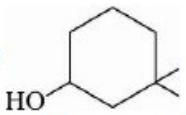


(A) Reactant has four functional groups **(B)** Product is tetrahydroxy compound

(C) Product has three primary alcohol groups **(D)** Product can't be oxidised by MnO_2

.leave it

Q24.  $\xrightarrow[H_2O]{Mg\text{—}Hg}$ (A) How many — OH groups are present in product (A)

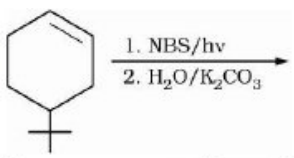
Q25. The IUPAC name of the compound  is :

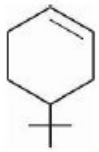
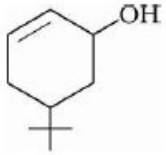
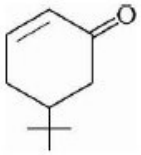
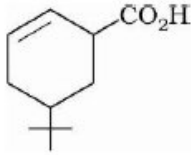
(A) 3, 3-dimethyl-1-hydroxy cyclohexane **(B)** 1, 1-dimethyl-3-hydroxy cyclohexane

(C) 3, 3-dimethyl-1-cyclohexanol **(D)** 1, 1-dimethyl-3-cyclohexanol

Q26. In the given sequence of reactions, $CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow[ether]{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$ the compound D is : **(2007)**

(A) propanal **(B)** butanal **(C)** n-butyl alcohol **(D)** n-propyl alcohol

Q27. The product of the reaction given below is : 

(A)  **(B)**  **(C)**  **(D)** 

Q28. $CH_3CH_2-\underset{\underset{Ph}{|}}{\overset{\overset{OH}{|}}{C}}-CH_3$ cannot be prepared by :

(A) $HCHO + PhCH(CH_3)CH_2MgX$ **(B)** $CH_3CH_2COCH_3 + PhMgX$

(C) $PhCOCH_2CH_3 + CH_3MgX$ **(D)** $PhCOCH_3 + CH_3CH_2MgX$

Q29. An industrial method of preparation of methanol is :

(A) catalytic reduction of carbon monoxide in presence of $ZnO - Cr_2O_3$

(B) by reacting methane with steam at 900°C with nickel catalyst

(C) by reducing formaldehyde with $LiAlH_4$

(D) by reacting formaldehyde with aqueous sodium hydroxide solution

$C_4H_{10}O$

Q30. The correct combination of names for isomeric alcohols with molecular formula $C_6H_{10}O$ is/are :

(A) tert-butanol and 2-methylpropan-2-ol **(B)** tert-butanol and 1, 1-dimethylethane-1-ol

(C) n-butanol and butan-1-ol **(D)** iso-butyl alcohol and 2-methylpropan-1-ol