EXERCISE - O

SINGLE CORRECT TYPE QUESTIONS

Introduction of Alcohols

1. Which of the following is a tertiary alcohol

(A) $(CH_3)_2\ CH\ CH_2\ OH$ (B) $CH_3CH_2CH_2CH_2OH$

(C) $CH_3CH_2CH_2OH$ (D) $(CH_3)_3COH$

CAE081

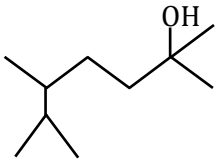
2. The IUPAC name of ethyl methyl ether is

(A) 1–methoxy ethane (B) ethoxy methane

(C) 2–methoxy ethane (D) 1–ethoxy methane

CAE080

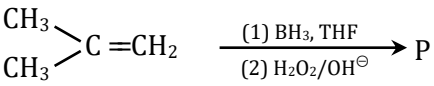
3. Which is the correct IUPAC name for the following compound?

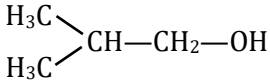


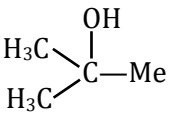
(A) 4–isopropyl–1, 1–dimethyl–1–pentanal (B) 5–isopropyl–1, 1–dimethyl–2–hexanol

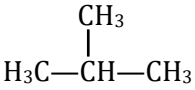
(C) 1,1,4,5–tetramethyl–1–hexanol (D) 2,5,6–trimethyl–2–heptanol

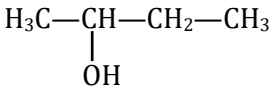
CAE079

4. 

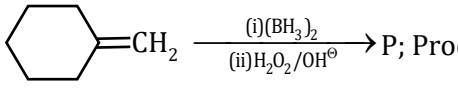
(A) 

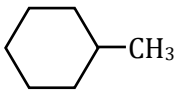
(B) 

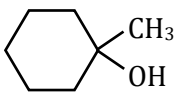
(C) 

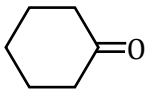
(D) 

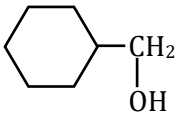
CAE085

5. 

(A) 

(B) 

(C) 

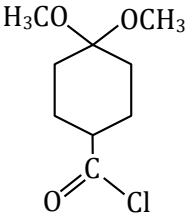
(D) 

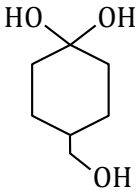
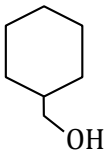
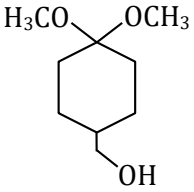
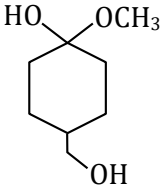
CAE086

6. $H_2C=CH—COOH \xrightarrow{LiAlH_4}$ Product, is :

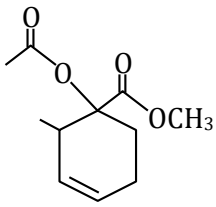
(A) $CH_3–CH_2–CH_2OH$
(B) $CH_3–CH_2–CHO$
(C) $CH_2=CH–CH_2OH$
(D) $CH_3–CH_2–COOH$

CAE087

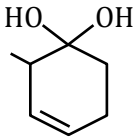
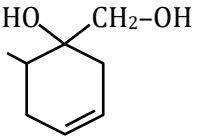
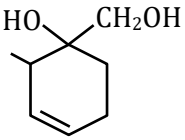
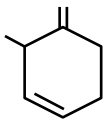
7.  $\xrightarrow{NaBH_4}$ (X), Product (X) is:

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

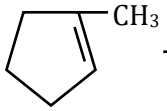
CAE088

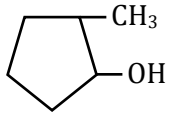
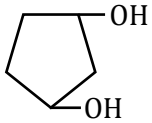
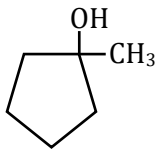
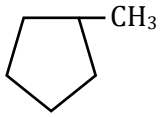
8.  $\xrightarrow[H_2O]{LiAlH_4}$ (A)

Find out 'A' of the reaction:

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

CAE089

9.  $\xrightarrow[(ii)\ NaBH_4/NaOH/H_2O]{(i)\ Hg(OAc)_2,\ H_2O}$ A, A is :

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

CAE082

10. Select the incorrect option for the following reaction:

$$CH_3—CH=CH_2 + H_2O \xrightarrow{H^{\oplus}} CH_3—\underset{\displaystyle OH}{\underset{|}{CH}}—CH_3$$

(A) This is an example of Nucleophilic addition reaction of alkene
(B) In the first step, protonation of alkene takes place to form carbocation
(C) In the second step, Nucleophilic attack of water takes place on carbocation
(D) In the last step deprotonation takes place to form an alcohol

CAE083

11. Which of the following statement is correct for hydroboration oxidation ?

(A) It follows Markovnikov's rule, and it is an anti-addition

(B) Effectively it follows Markovnikov's rule, and it is a syn-addition

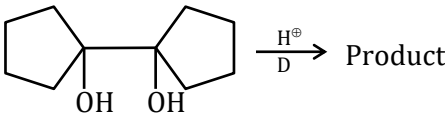
(C) It does not follow Markovnikov's rule, and it is an anti-addition

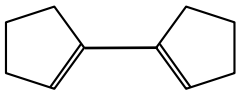
(D) It does not follow Markovnikov's rule, and it is a syn-addition

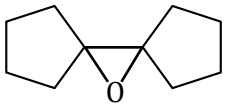
CAE084

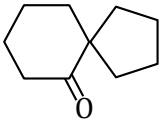
Reaction of Alcohol and ethers

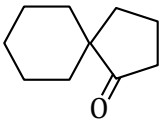
12. The structure of the product formed in the reaction given below is:



(A) 

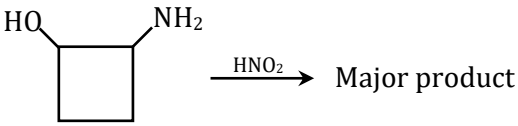
(B) 

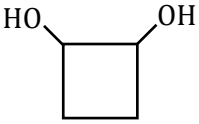
(C) 

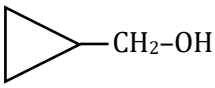
(D) 

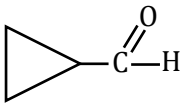
CAE099

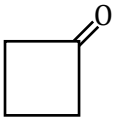
13. Major product of the reaction is :



(A) 

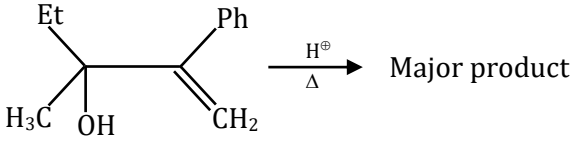
(B) 

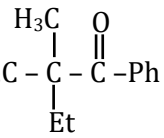
(C) 

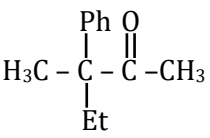
(D) 

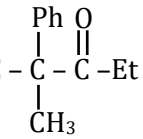
CAE100

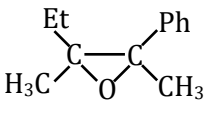
14. For the given reaction major product is :



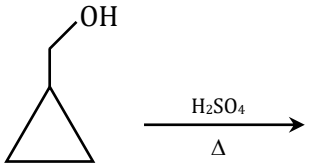
(A) 

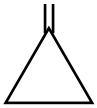
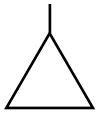
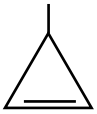
(B) 

(C) 

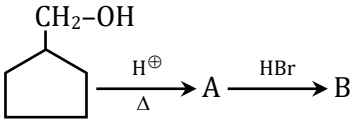
(D) 

CAE101

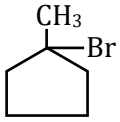
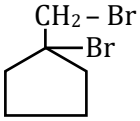
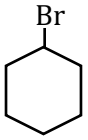
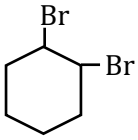
15. 

(A)  (B)  (C)  (D) None of these

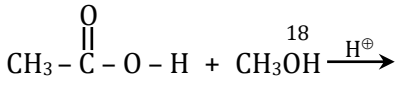
CAE102

16. 

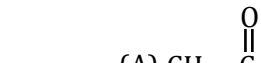
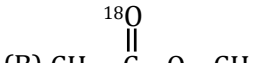
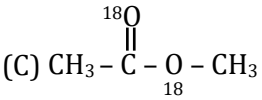
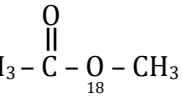
What is the structure of B?

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

CAE103

17.  Product,

Product can be :

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

CAE093

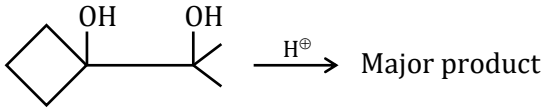
18. Arrange the following alcohols in the increasing order of esterification:

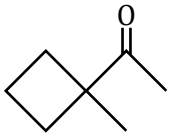
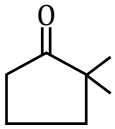
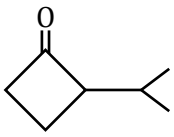
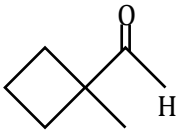
(a) sec-butyl alcohol (b) tert-Butyl alcohol (c) n-Butyl alcohol

(A) c > b > a (B) c > a > b (C) a > b > c (D) b > a > c

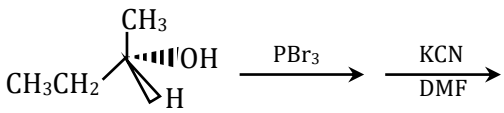
CAE094

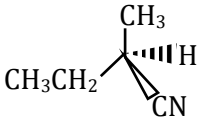
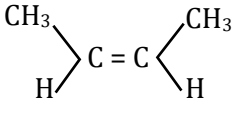
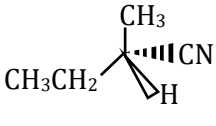
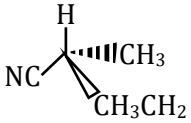
19. Find out major product of following reaction:

 Major product

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

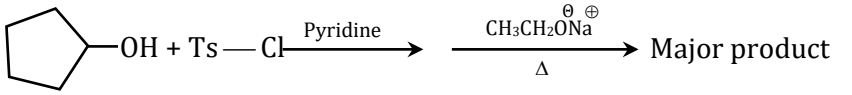
CAE098

20.  Product , the product is:

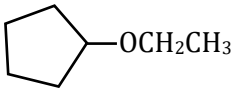
(A)  (B)  (C)  (D) 

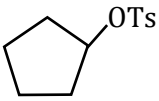
CAE104

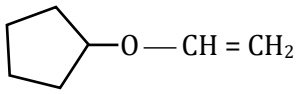
21. What would be the major product of following reactions?



(A) 

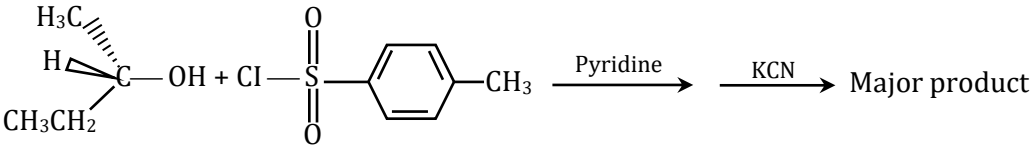
(B) 

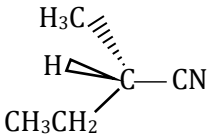
(C) 

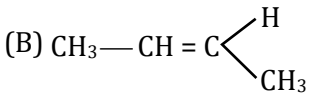
(D) 

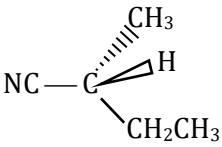
CAE105

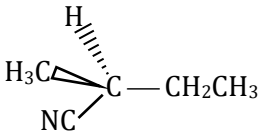
22. Find the major product of following reaction:



(A) 

(B) 

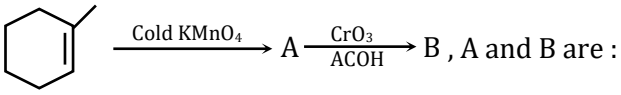
(C) 

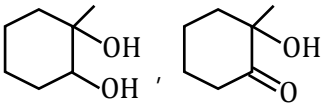
(D) 

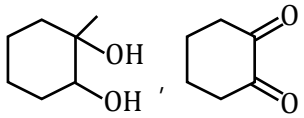
CAE106

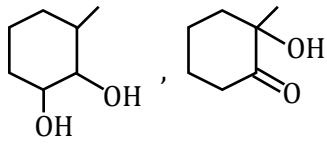
Oxidation of Alcohol

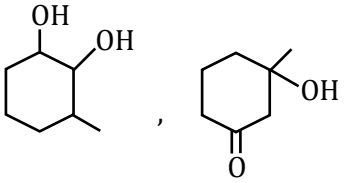
23. For the given reaction sequence



(A) 

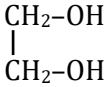
(B) 

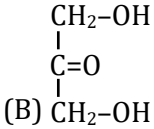
(C) 

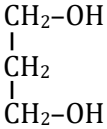
(D) 

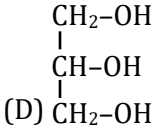
CAE113

24. Which of the following does not react with aqueous Periodic acid?

(A) 

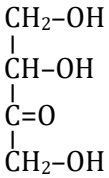
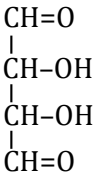
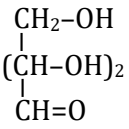
(B) 

(C) 

(D) 

CAE114

25. Which gives 2 moles of HCHO, 1 mole of HCOOH and CO_2 with HIO_4 :

(A) 
(B) 
(C) 
(D) All of these

CAE116

26. $CH_3CH_2CH_2CH_2OH \xrightarrow{PCC}$ X, X is

(A) $CH_3CH_2CH_2CHO$ (B) $CH_3CH_2CH_2COOH$ (C) CH_3CH_2CHO (D) $CH_3CH_2COCH_3$

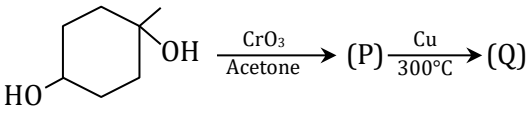
CAE109

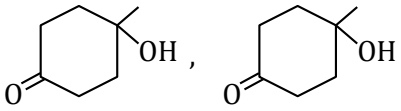
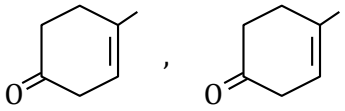
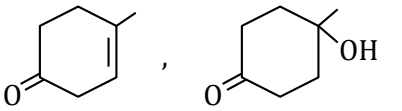
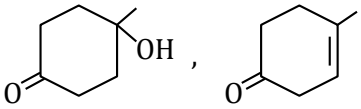
27. An organic compound B is formed by the reaction of ethyl magnesium iodide (CH_3CH_2MgI) with a substance A, followed by treatment with dilute aqueous acid. Compound B does not react with PCC in dichloromethane. Identify A?

(A) 
(B) 
(C) $H_2C{=}O$
(D) 

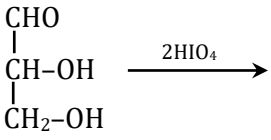
CAE112

28. (P) and (Q) in the following reaction is:



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

CAE119

29.  $\xrightarrow{2HIO_4}$ Product (P_1) + Product (P_2)

Products obtained in the above reaction are:

(A) HCHO, HCO_2H (B) HCHO, $2HCO_2H$ (C) CO_2, $2HCO_2H$ (D) CO_2, HCHO, HCO_2H

CAE118

Test of Alcohol

30. Which of the following does not turn orange colour of chromic acid to green?

(A) 1° alcohol (B) 2° alcohol (C) 3° alcohol (D) Allyl alcohol

CAE122

31. Alcohol which gives blue colouration in Victor Meyer test is :

(A) Only CH_3CH_2—OH

(B) Only CH_3CH_2—CH_2OH

(C) All alcohols containing —$\overset{|}{C}H_2$—OH group

(D) All alcohols containing $>$CH–OH group

CAE123

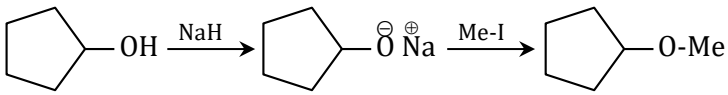
32. Which of the following alcohols gives a red colour in Victor Meyer test?

(A) CH_3–CH_2–CH_2–OH (B) CH_3–$\underset{\underset{CH_3}{|}}{CH}$–OH (C) $(CH_3)_3C$–OH (D) CH_3–$\underset{\underset{CH_3}{|}}{CH}$–$CH_2$–$CH_3$

CAE121

Methode of preparation of ethers and epoxides

33. The reaction



can be classified as :-

(A) Dehydration reaction (B) Williamson ether synthesis reaction

(C) Williamson alcohol synthesis reaction (D) Alcohol formation reaction

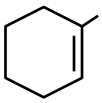
CAE129

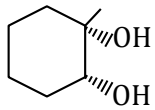
34. The mechanism of formation of ether from dehydration of alcohol doesn't involve :-

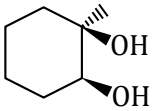
(A) Formation of protonated alcohol. (B) Nucleophilic attack by alcohol.

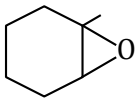
(C) Formation of carbocation. (D) Nucleophilic attack of water molecular.

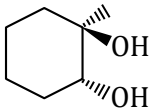
CAE139

35.  $\xrightarrow{mCPBA}$ P, the product P is :

(A) 

(B) 

(C) 

(D) 

CAE141

36. Williamson's synthesis involves :-

(A) S_N1 mechanism (B) Nucleophilic addition

(C) S_N2 mechanism (D) S_E mechanism

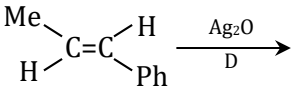
CAE125

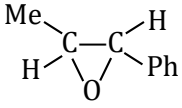
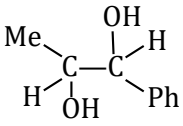
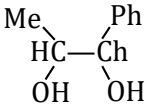
37. In the williamson synthesis of ethers given by the general equation R–X + R'–ONa $\longrightarrow$ R–OR', the yield form R–X follows the sequence :-

(A) $CH_3 > 1° > 2° > 3°$ (B) $CH_3 < 1° < 2° < 3°$

(C) $CH_3 < 1° > 2° > 3°$ (D) $CH_3 > 1° < 2° > 3°$

CAE126

38. For the given reaction  P , the product P is

(A) 
(B) 
(C) 
(D) None of these

CAE142

39. A student tried two reactions for preparing tert-butyl ethyl ether:

(I) $C_2H_5ONa + CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-Cl \longrightarrow$

(II) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-ONa + CH_3-CH_2-Cl \longrightarrow$

Which reaction will give test-butyl ether?

(A) Only I (B) Only II (C) Both I & II (D) Neither I nor II

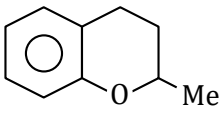
CAE128

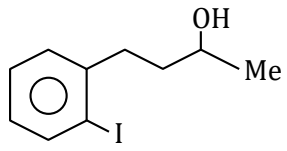
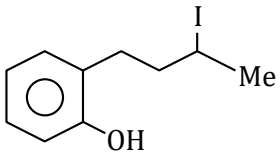
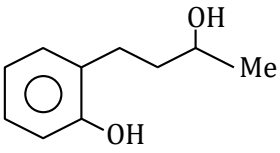
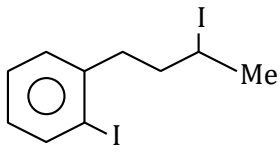
Reaction of Alcohol and ether

40. Anisole $\xrightarrow[\text{reflux}]{\text{HI(Conc.)}}$ Product :-

(A) Ph–I + Me–I (B) Ph–I + MeOH (C) Ph–OH + MeI (D) Ph–OH + MeOH

CAE145

41.  $\xrightarrow{\text{conc.HI}}$ Product ; Product is :

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

CAE144

42. $CH_3CH_2-\underset{\displaystyle CH_3}{\overset{|}{CH}}-CH_2-O-CH_2CH_3 + HI \longrightarrow P,$

(A) $CH_3CH_2-\underset{\displaystyle CH_3}{\overset{|}{CH}}-CH_2OH + CH_3CH_2I$

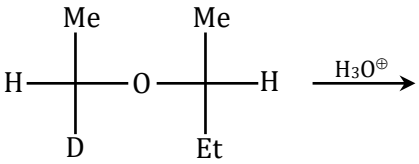
(B) $CH_3-CH_2-\underset{\displaystyle CH_3}{\overset{|}{CH}}-CH_2I + CH_3CH_2OH$

(C) $CH_3-CH_2-\underset{\displaystyle CH_3}{\overset{|}{CH}}-CH_2I + CH_3-I$

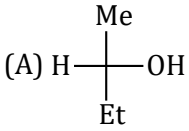
(D) CH_3 —CH_2 —OH only

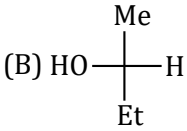
CAE146

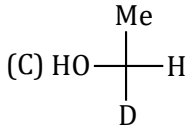
43. Which of the following alcohol is not present in the mixture containing major products.

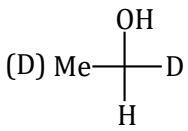


Product mixture.

(A) 

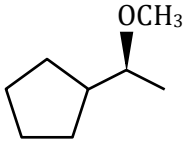
(B) 

(C) 

(D) 

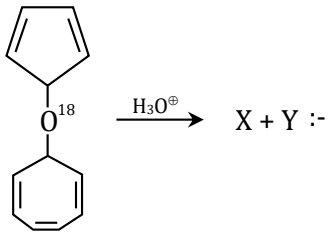
CAE147

44. How many total alcohols are formed by acidic hydrolysis of following ether.

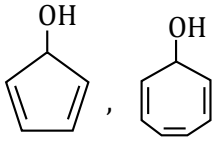


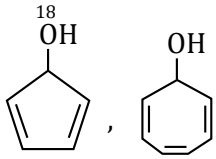
(A) 5 (B) 6 (C) 7 (D) 8

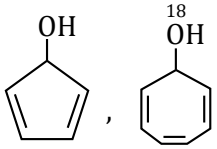
CAE148

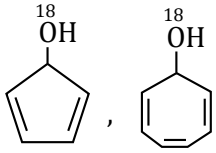
45. 

The products X and Y are

(A) 

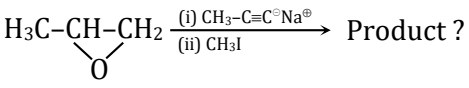
(B) 

(C) 

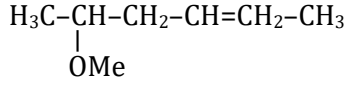
(D) 

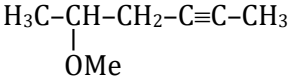
CAE150

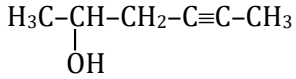
46. For the given reaction

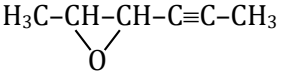


Product is :

(A) 

(B) 

(C) 

(D) 

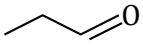
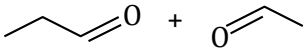
CAE151

47. Diethyl ether on prolong exposure to air gives :

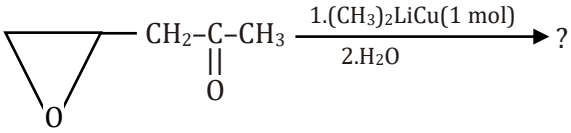
(A) Ethanol
(B) Diethyl peroxide
(C) Diethyl hydroxy peroxide
(D) Ethanoic acid

CAE152

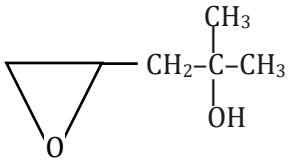
48. $CH_3-CH_2-O-\underset{\underset{CH_3}{|}}{C}=CH_2 \xrightarrow{H_3O^{\oplus}}$ Product are

(A)  + EtOH
(B)  + EtOH
(C)  + EtOH
(D) 

CAE149

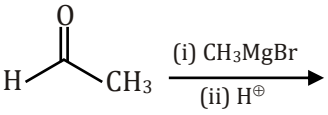
49. 

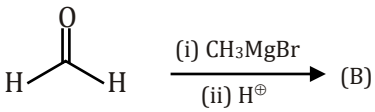
The product is :

(A) $CH_3-CH_2-\underset{\underset{OH}{|}}{CH}-CH_2-\underset{\underset{O}{||}}{C}-CH_3$
(B) $CH_3-CH_2-\underset{\underset{OH}{|}}{CH}-CH_2-\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3$
(C) 
(D) All

CAE153

MULTIPLE CORRECT TYPE QUESTIONS

50.  (A);

 (B)

Which of the following reagents can be used to differentiate between A and B?

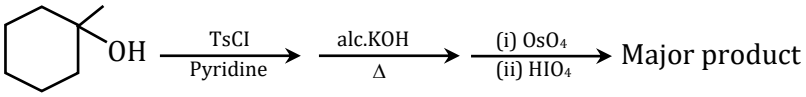
(A) Na
(B) $FeCl_3$
(C) Lucas reagents
(D) $K_2Cr_2O_7$

CAE124

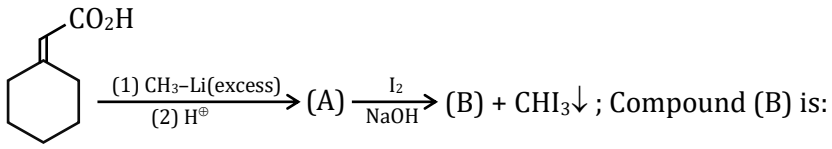
EXERCISE - S

Reaction of Alcohols

1. Identify the major product of following sequence of reactions:

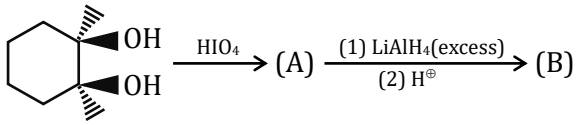


CAE110

2. 

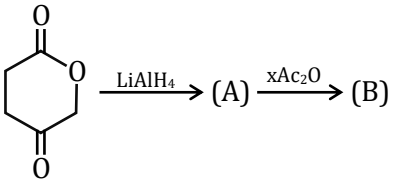
; Compound (B) is:

CAE155

3. 

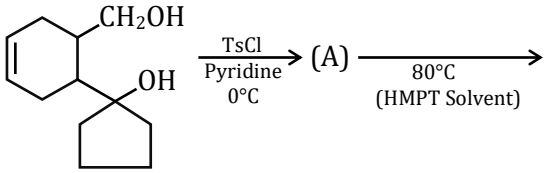
Total number of stereoisomers of product (B) will be:

CAE156

4. 

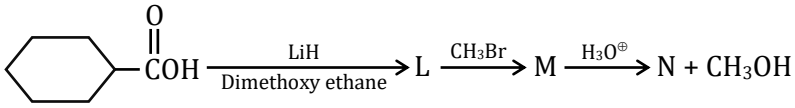
x = moles of anhydride consumed

CAE157

5. 

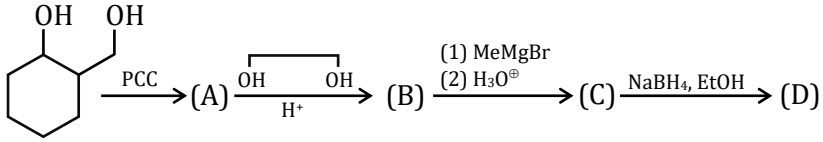
(B) 84%, Final product (B) will be :

CAE158

6. 

Product (N) is:

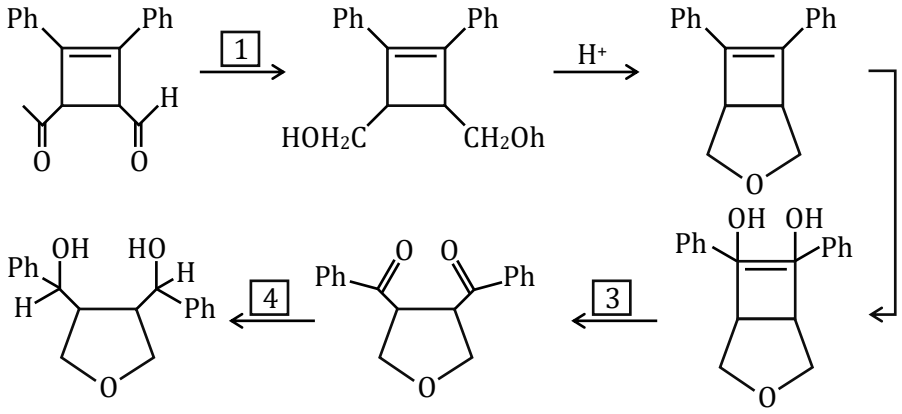
CAE159

7. 

Product (D) in above reaction is:

CAE160

8. Identify the reagents (1-4), required for the transformations as shown below.



CAE161

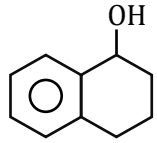
9. (A) $\xrightarrow{PBr_3}$ (C) $\xrightarrow{Mg,\ ether}$ Grignard reagent

(A) $\xrightarrow[H_2SO_4]{Na_2Cr_2O_7}$ (B)

Grignard reagent + (B) $\longrightarrow$ (D) $\xrightarrow{H_3O^{\oplus}}$ (3, 4-dimethyl 3-hexanol)

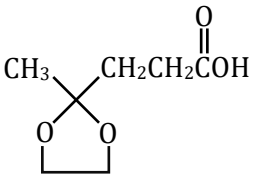
When Grignard reagent reacts with (B) product (D) will obtained.

Reactant (A) of the above reaction is : **CAE162**

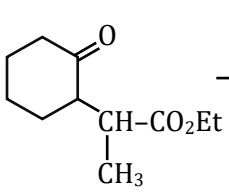
10.  $\xrightarrow[Pyridine]{TsCl}$ (A) $\xrightarrow{LiAlH_4}$ (B)

Product (B) of the above reaction is :

CAE163

11.  $\xrightarrow{CH_3Li}$ (A) $\xrightarrow{CH_3Li}$ (B) $\xrightarrow{H_3O^{\oplus}}$ (C)

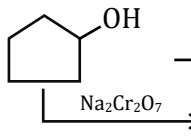
Product (C) of the above reaction is: **CAE164**

12.  $\xrightarrow[H^+]{CH_2-OH\ |\ CH_2-OH}$ (A) $\xrightarrow{LiAlH_4}$ (B) $\xrightarrow{H_3O^{\oplus}}$ (C). Product C is:

CAE165

13. $CH_3-(CH_2)_3-OH \xrightarrow[Et_3N]{CH_3-\overset{\overset{O}{\|}}{\underset{\underset{O}{\|}}{S}}-Cl}$ (A) $\xrightarrow{^{14}KCN}$ (B) $\xrightarrow{H_3O^{\oplus}}$ (C). Product C is:

CAE166

14.  $\xrightarrow{PBr_3}$ W $\xrightarrow[ether]{Mg}$ X $\xrightarrow[(2)\ H_3O^+]{(1)\ V}$ Y $\xrightarrow{CH_3-\overset{\overset{O}{\|}}{C}-Cl}$ Z

$\xrightarrow[]{Na_2Cr_2O_7}$ V

Product Z of above reaction is: **CAE167**

EXERCISE - JEE (Main) PYQ

1. From amongst the following alcohols the one that would react fastest with conc. HCl and anhydrous $ZnCl_2$, is :

[AIEEE-2010]

(1) 1–Butanol
(2) 2–Butanol
(3) 2–Methylpropan–2–ol
(4) 2–Methylpropanol

CAE031

2. Consider the following reaction :

$C_2H_5OH + H_2SO_4 \rightarrow$ Product

Among the following, which one cannot be formed as a product under any conditions?

[AIEEE-2011]

(1) Ethyl-hydrogen sulphate
(2) Ethylene
(3) Acetylene
(4) Diethyl ether

CAE032

3. An unknown alcohol is treated with the "Lucas reagent' to determine whether the alcohol is primary, secondary or tertiary. Which alcohol reacts fastest and by what mechanism:

[AIEEE-2013]

(1) secondary alcohol by S_N1
(2) tertiary alcohol by S_N1
(3) secondary alcohol by S_N2
(4) tertiary alcohol by S_N2

CAE033

4. Allyl phenyl ether can be prepared by heating: **[JEE (Main) 2014]**

(1) $CH_2=CH-CH_2-Br + C_6H_5ONa$
(2) $C_6H_5-CH=CH-Br + CH_3-ONa$
(3) $C_6H_5Br + CH_2=CH-CH_2-ONa$
(4) $CH_2=CH-Br + C_6H_5-CH_2-ONa$

CAE034

5. In the Victor-Meyer's test, the colour given by 1°, 2° and 3° alcohols are respectively :-

[JEE (Main) 2014]

(1) Red, blue, colourless
(2) Colourless, red, blue
(3) Red, blue, violet
(4) Red, colourless, blue

CAE035

6. Williamson synthesis of ether is an example of :

[JEE (Main) 2014]

(1) Nucleophilic addition
(2) Electrophilic substitution
(3) Nucleophilic substitution
(4) Electrophilic addition

CAE036

7. Bouveault–Blanc reduction reaction involves:

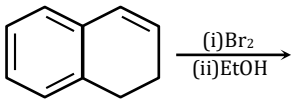
[JEE (Main) 2016]

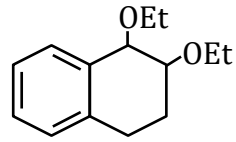
(1) Reduction of an ester with Na/C_2H_5OH
(2) Reduction of an ester with H_2/Pd
(3) Reduction of a carbonyl compound with Na/Hg and HCl
(4) Reduction of an anhydride with $LiAlH_4$

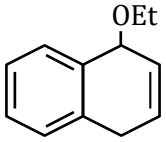
CAE037

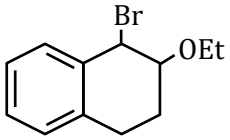
8. The major product the following reaction is :

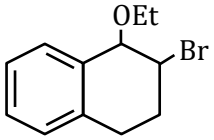
[JEE (Main) 2019]



(1) 

(2) 

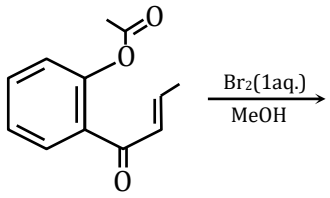
(3) 

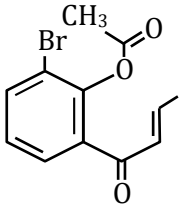
(4) 

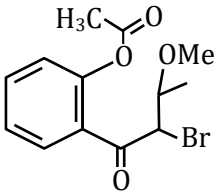
CAE038

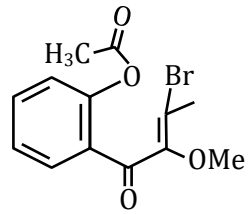
9. The major product obtained in the following conversion is :-

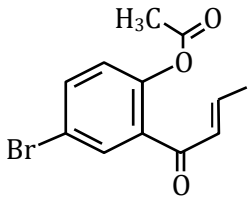
[JEE (Main) 2019]



(1) 

(2) 

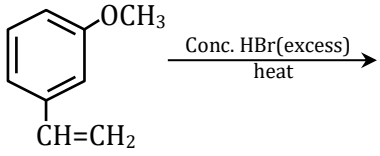
(3) 

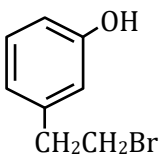
(4) 

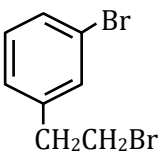
CAE039

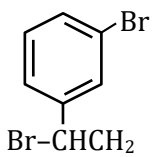
10. The major product of the following reactions:

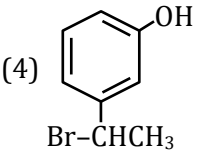
[JEE (Main) 2019]



(1) 

(2) 

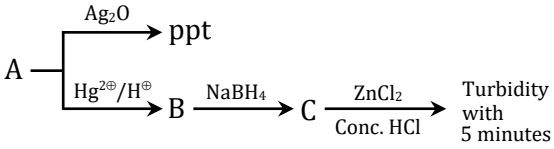
(3) 

(4) 

CAE040

11. Consider the following reactions :

[JEE (Main) 2019]



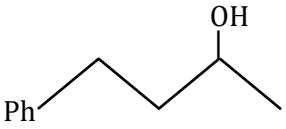
'A' is :

(1) CH≡CH (2) CH_3–C≡CH (3) CH_2=CH_2 (4) CH_3–C≡C–CH_3

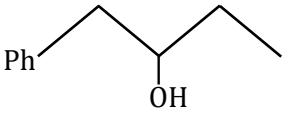
CAE041

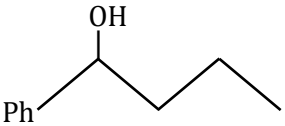
12. Heating of 2-chloro-1-phenylbutane with EtOK/EtOH gives X as the major product. Reaction of X with $Hg(OAc)_2/H_2O$ followed by $NaBH_4$ gives Y as the major product. Y is :

[JEE (Main) 2019]

(1) 

(2) 

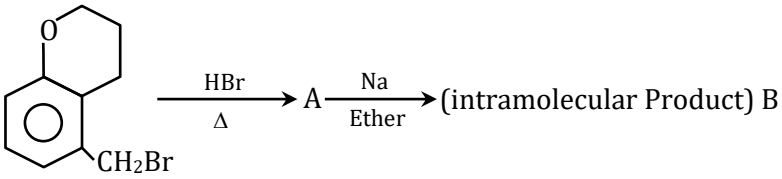
(3) 

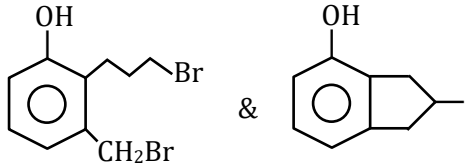
(4) 

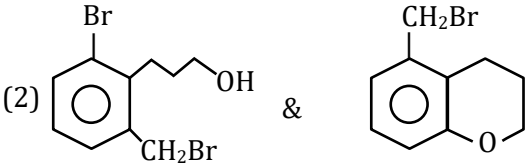
CAE042

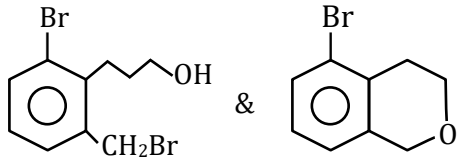
13. In the following reaction sequence, structures of A and B, respectively will be:

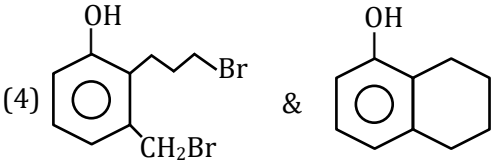
[JEE (Main) 2020]



(1) 

(2) 

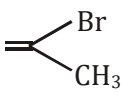
(3) 

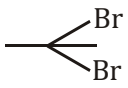
(4) 

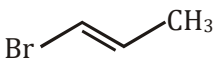
CAE043

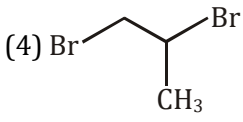
14. 1-methyl ethylene oxide when treated with an excess of HBr produces :

[JEE (Main) 2020]

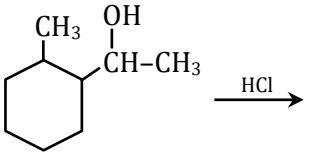
(1) 

(2) 

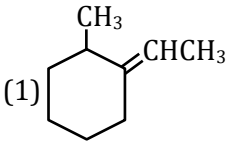
(3) 

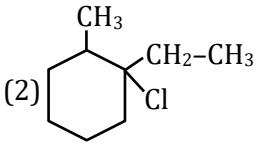
(4) 

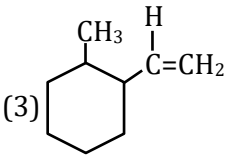
CAE044

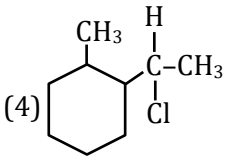
15. 

[JEE (Main) 2021]

(1) 

(2) 

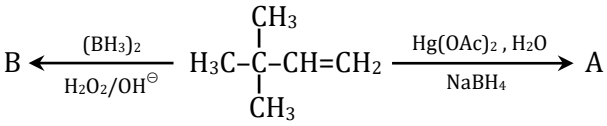
(3) 

(4) 

CAE045

16. Choose the correct option for the following reactions.

[JEE (Main) 2022]



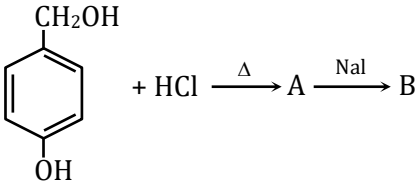
(1) 'A' and 'B' are both Markovnikov addition products.

(2) 'A' is Markovnikov product and 'B' is anti-Markovnikov product.

(3) 'A' and 'B' are both anti-Markovnikov products.

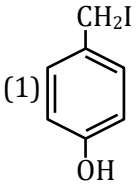
(4) 'B' is Markovnikov and 'A' is anti-Markovnikov product.

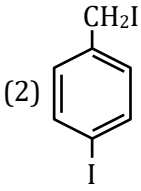
CAE046

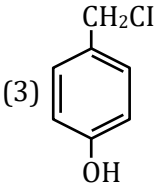
17. 

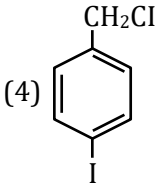
In the above reaction product B is:

[JEE (Main) 2022]

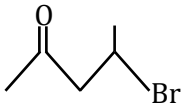
(1) 

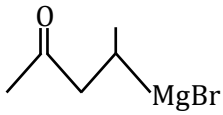
(2) 

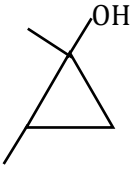
(3) 

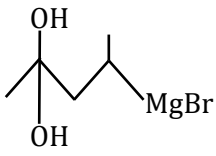
(4) 

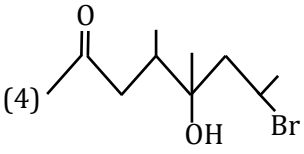
CAE047

18.  'A' (Major product) A is **[JEE (Main) 2023]**

(1) 

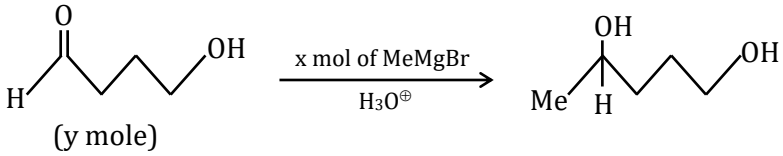
(2) 

(3) 

(4) 

CAE048

19.



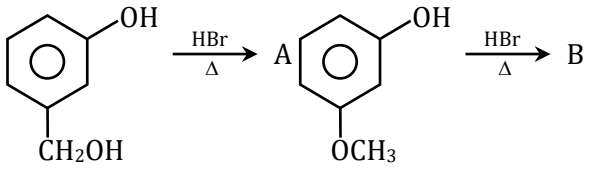
(y mole)

The ratio x/y on completion of the above reaction is _____.

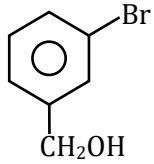
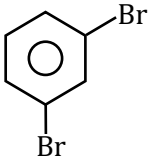
[JEE (Main) 2023]

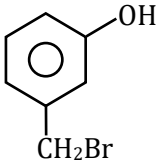
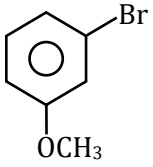
CAE050

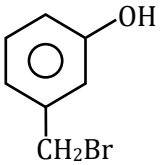
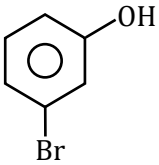
20. 'A' and 'B' formed in the following set of reactions are :

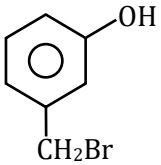
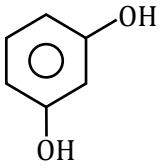


[JEE (Main) 2023]

(1) A =  , B = 

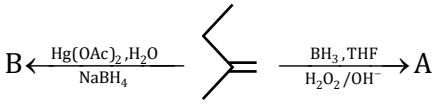
(2) A =  , B = 

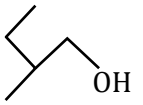
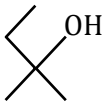
(3) A =  , B = 

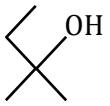
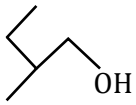
(4) A =  , B = 

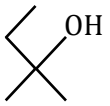
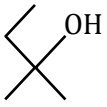
CAE168

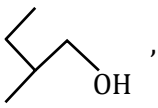
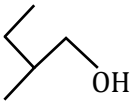
21. Find out the major products from the following reactions. **[JEE (Main) 2023]**



(1) A =  , B = 

(2) A =  , B = 

(3) A =  , B = 

(4) A =  , B = 

CAE169

22. A solution of CrO_5 in amyl alcohol has a....colour **[JEE (Main) 2023]**

(1) Green (2) Orange–Red (3) Yellow (4) Blue

CAE170

23. A trisubstituted compound 'A', $C_{10}H_{12}O_2$ gives neutral $FeCl_3$ test positive. Treatment of compound 'A' with NaOH and CH_3Br gives $C_{11}H_4O_2$, with hydroiodic acid gives methyl iodide and with hot conc. NaOH gives a compound B, $C_{10}H_{12}O_2$ Compound 'A' also decolorises alkaline $KMnO_4$. The number of π bond/s present in the compound 'A' is _____.

[JEE (Main) 2023]

CAE171

24. Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**.

[JEE (Main) 2023]

Assertion A: Butan–1–ol has higher boiling point than ethoxyethane.

Reason R: Extensive hydrogen bonding leads to stronger association of molecules.

In the light of the above statements, choose the correct answer from the options given below:

(1) Both A and R are true and R is the correct explanation of A

(2) A is true but R is false

(3) Both A and R are true but R is not the correct explanation of A

(4) A is false but R is true

CAE172

25. Suitable reaction condition for preparation of Methyl phenyl ether is

[JEE (Main) 2023]

(1) $Ph-Br, MeO^-Na^+$

(2) $PhO^-Na^+, MeOH$

(3) $PhO^-Na^+, MeBr$

(4) Benzene, MeBr

CAE173

26. Incorrect method of preparation for alcohols from the following is:

[JEE (Main) 2023]

(1) Ozonolysis of alkene.

(2) Reaction of Ketone with RMgBr followed by hydrolysis.

(3) Hydroboration–oxidation of alkene.

(4) Reaction of alkyl halide with aqueous NaOH.

CAE174

27. The product formed in the following multistep reaction is:

$$CH_3—CH=CH_2 \xrightarrow[\text{ii) } H_2O_2, NaOH \\ \text{iii) PCC} \\ \text{iv) } CH_3MgBr]{\text{i) } B_2H_6}$$

[JEE (Main) 2023]

(1) $CH_3-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(2) $CH_3-CH_2-CH_2-CH_2-OH$

(3) $CH_3-CH_2-\overset{\displaystyle O}{\overset{\|}{C}}-OCH_3$

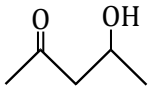
(4) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{\overset{\displaystyle OH}{\overset{|}{C}}}}-CH_3$

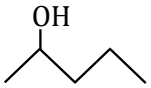
CAE175

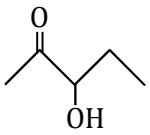
EXERCISE - JEE (Advanced) PYQ

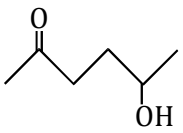
1. Which one of the following will most readily be dehydrated in acidic condition?

[IIT - 2000]

(A) 

(B) 

(C) 

(D) 

CAE069

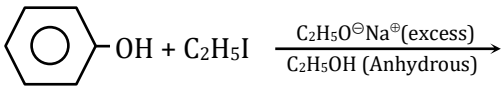
2. Identify the correct order of boiling point of the following compounds:

[IIT - 2002]

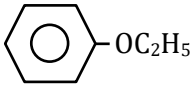
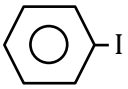
$CH_3CH_2CH_2CH_2OH$ (1) $CH_3CH_2CH_2CHO$ (2) $CH_3CH_2CH_2COOH$ (3)

(A) 1 > 2 > 3 (B) 3 > 1 > 2 (C) 1 > 3 > 2 (D) 3 > 2 >1

CAE070

3. 

[IIT - 2003]

(A)  (B)  (C) $C_6H_5OC_6H_5$ (D) $C_2H_5OC_2H_5$

CAE071

4. Reaction of enantiomerically pure acid with 1 chiral carbon and racemic alcohol with 1 chiral carbon gives an ester which is: **[IIT - 2003]**

(A) Meso (B) Optically active mixture

(C) Racemic mixture (D) Enantionmerically pure

CAE072

5. On acid catalysed hydration, 2-phenyl propene gives:

[IIT - 2004]

(A) 3-phenyl-2-propanol (B) 2-phenyl-1-propanol

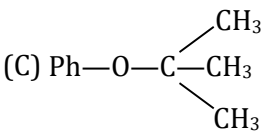
(C) 1-phenyl-3-propanol (D) 2-phenyl-2-propanol

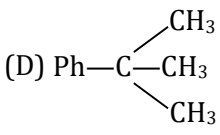
CAE073

6. Phenyl magnesium bromide reacting with t-Butyl alcohol gives

[IIT - 2005]

(A) Ph—OH (B) Ph—H

(C) 

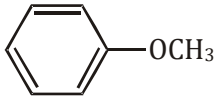
(D) 

CAE074

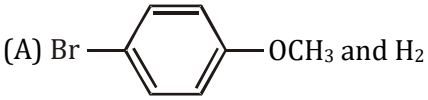
7. The number of water molecule(s) directly bonded to the metal centre in $CuSO_4.5H_2O$ is :

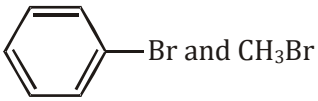
[IIT - 2009]

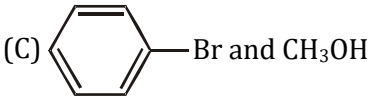
CCB071

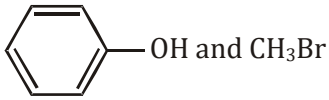
8. In the reaction  the products are

[IIT - 2010]

(A) 

(B) 

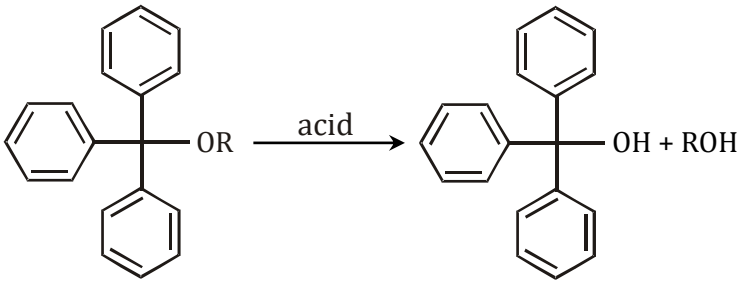
(C) 

(D) 

CAE075

9. The acidic hydrolysis of ether (X) shown below is fastest when :

[JEE (Advanced) 2014]



[X]

(A) one phenyl group is replaced by a methyl group
(B) one phenyl group is replaced by a para-methoxyphenyl group
(C) two phenyl groups are replaced by two para-methoxyphenyl group
(D) no structural change is made to X

CAE076

10. The correct combination of names for isomeric alcohols with molecular formula $C_4H_{10}O$ is/are :

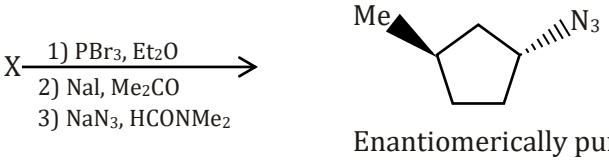
[JEE (Advanced) 2014]

(A) tert-butylalcohol and 2-methylpropan-2-ol
(B) tert- butylalcohol and 1, 1-dimethylethan-1-ol
(C) n-butanol and butan-1-ol
(D) Isobutyl alcohol and 2-methylpropan-1-ol

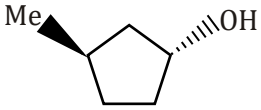
CAE077

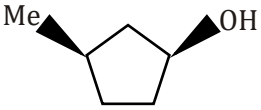
11. In the following reaction sequence, the correct structure(s) of X is (are)

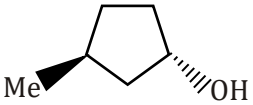
[JEE (Advanced) 2018]

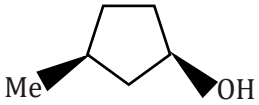


Enantiomerically pure

(A) 

(B) 

(C) 

(D) 

CAE078

JEE (Main) Practice Paper

This paper is for yourself practice and assessment the discussion of this paper is optional though you can see PDF solutions or video solutions or solutions in hardcopy whichever is provided.

SECTION–A

- This section contains **TWENTY** questions.
- Each question has **FOUR** options (1), (2), (3) and (4). **ONLY ONE** of these four options is correct.
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories :

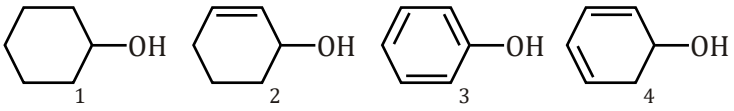
Full Marks : +4, if only the bubble corresponding to the correct option is darkened.

Zero Marks : 0, if none of the bubbles is darkened.

Negative Marks : –1 in all other cases

---

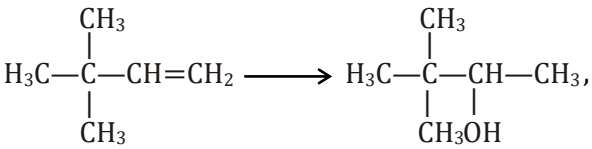
1. Correct order of dehydration of following alcohols will be :



(1) 1 < 2 < 3 < 4 (2) 4 > 3 > 1 > 2

(3) 4 > 2 > 1 > 3 (4) 1 > 3 > 4 > 2

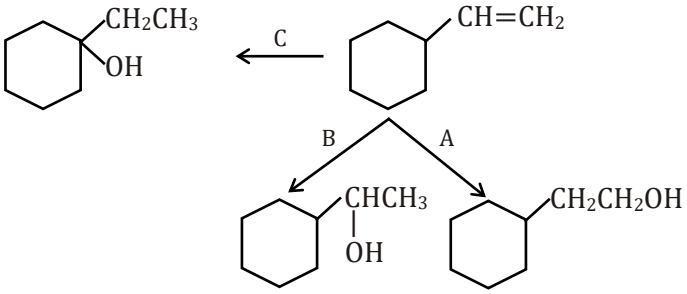
CAE001

2.  This interconversion can be achieved by :

(1) Acid catalysed hydration (2) Oxymercuration-demercuration

(3) Hydroboration - oxidation (4) Any method mentioned above

CAE002

3. 

Select schemes A, B, C out of

(I) Acid catalysed hydration

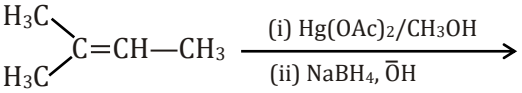
(II) HBO

(III) Oxymercuration-demercuration

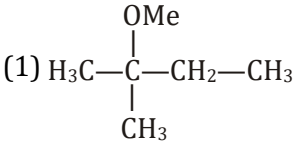
(1) I in all cases (2) I, II, III (3) II, III, I (4) III, I, II

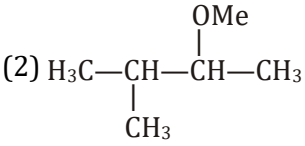
CAE003

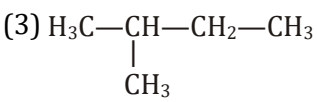
4. In the given reaction

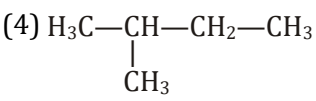


[X], [X] will be :

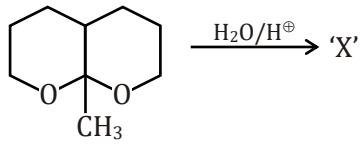
(1) 

(2) 

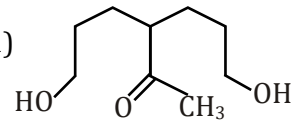
(3) 

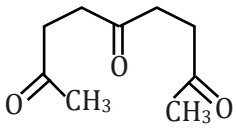
(4) 

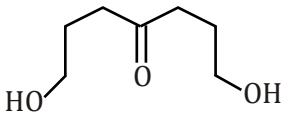
CAE004

5. 

Product 'X' will be :

(1) 

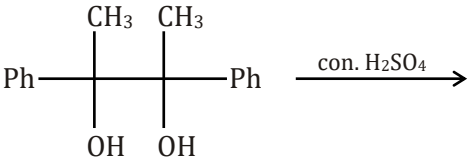
(2) 

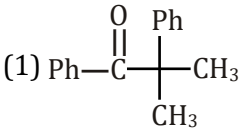
(3) 

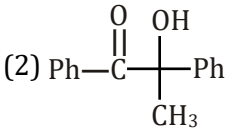
(4) All of these

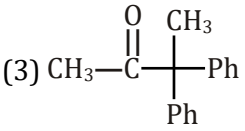
CAE005

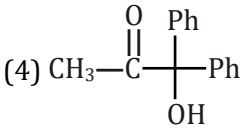
6. Find out major product of following reaction.



(1) 

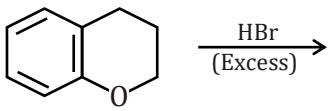
(2) 

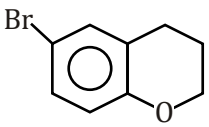
(3) 

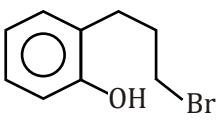
(4) 

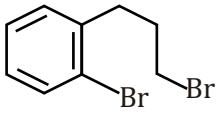
CAE006

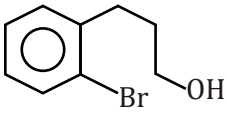
7. Find out correct product of reaction:



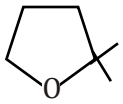
(1) 

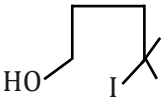
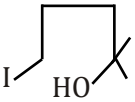
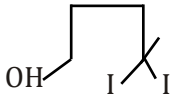
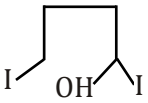
(2) 

(3) 

(4) 

CAE007

8.  + HI (1 eq.) ⟶ Product, Product is:

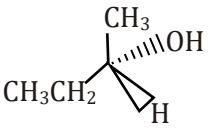
(1) 
(2) 
(3) 
(4) 

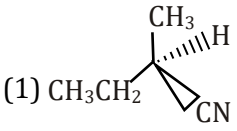
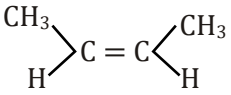
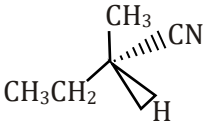
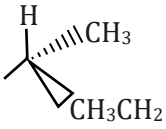
CAE008

9. $H_3C-\underset{\underset{O}{\diagup\diagdown}}{CH}-CH_2$ $\xrightarrow[(ii)\ CH_3I]{(i)\ CH_3-C\equiv C^{\ominus}Na^{\oplus}}$ Product, Product is:

(1) $H_3C-\underset{\underset{OMe}{|}}{CH}-CH_2-CH=CH_2-CH_3$
(2) $H_3C-\underset{\underset{OMe}{|}}{CH}-CH_2-C\equiv C-CH_3$
(3) $H_3C-\underset{\underset{OH}{|}}{CH}-CH_2-C\equiv C-CH_3$
(4) $H_3C-\underset{\underset{O}{\diagup\diagdown}}{CH}-CH-C\equiv C-CH_3$

CAE009

10.  $\xrightarrow{PBr_3}$ $\xrightarrow[DMF]{KCN}$ Final product is ?

(1) 
(2) 
(3) 
(4) 

CAE010

11. On reaction of ether with BF_3 ether act as
(1) Electrophile (2) Nucleophile (3) Ambiphile (4) None

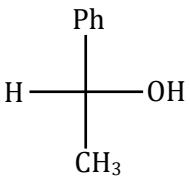
CAE011

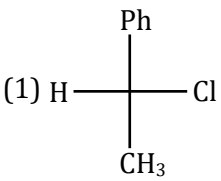
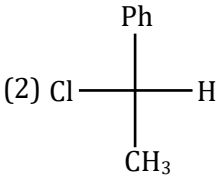
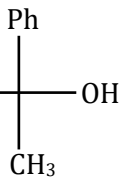
12. Which of the following test can be used to differentiate methyl alcohol and iso–propyl alcohol.
(1) Litmus paper test (2) Bromine water test
(3) Lucas test (4) All of these

CAE012

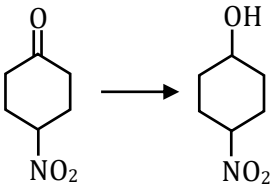
13. How many primary alcohols (including stereoisomers) are possible with formula $C_5H_{12}O$?
(1) Two (2) Three (3) Four (4) Five

CAE013

14.  $\xrightarrow{SOCl_2}$ (P) is

(1) 
(2) 
(3) 
(4) None of these

CAE014

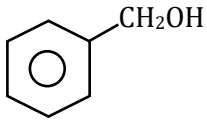
15. 

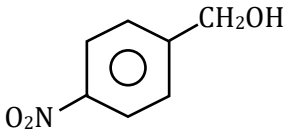
Above conversion can be achieved by:

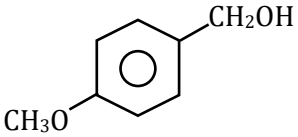
(1) CH_3MgBr (2) $NaBH_4$ (3) H_2/Ni (4) CrO_3

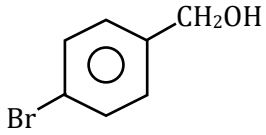
CAE015

16. Consider the following alcohols

(I) 

(II) 

(III) 

(IV) 

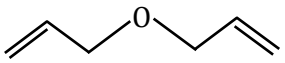
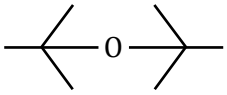
The order of decreasing reactivities of these alcohols towards nucleophilic substitution with HBr is:

(1) III > I > IV > II (2) III > I > II > IV (3) I > III > IV > II (4) I > III > II > IV

CAE016

17. Which of the following ethers is least reactive to cleavage with conc. HBr ?

(1) $Ph—CH_2—O—CH_3$ (2) $Ph—O—Ph$

(3)  (4) 

CAE017

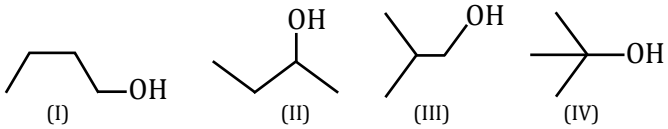
18. Ethanol when reacts with PCl_5 gives A, $POCl_3$ and HCl. A reacts with dry Ag_2O to form B(major product) and AgCl. A and B respectively are:

(1) C_2H_5Cl and $C_2H_5OC_2H_5$ (2) C_2H_4 and $C_2H_5OC_2H_5$

(3) C_2H_6 and $C_2H_5OC_2H_5$ (4) C_2H_6 and $C_2H_5NO_2$

CAE018

19. Dehydration of isomeric alcohols



(I) (II) (III) (IV)

What will be the order of rate of reaction?

(1) IV > III > II > I (2) I > II > III > IV (3) IV > II > III > I (4) II > IV > I > III

CAE019

20. $CH_3-(CH_2)_3-OH \xrightarrow[Et_3N]{CH_3-\overset{\overset{O}{\|}}{\underset{\underset{O}{\|}}{S}}-Cl} (A) \xrightarrow{KC^{14}N} (B) \xrightarrow{H_3O^{\oplus}} (C)$

Product (C) is :

(1) $CH_3-(CH_2)_3-CO_2H$ (2) $CH_3-(CH_2)_3-C^{14}O_2H$

(3) CH_3-CO_2H (4) $CH_3-\overset{\overset{O}{\|}}{C^{14}}-OH$

CAE020

SECTION-B

- This section will have **TEN questions**. Candidate can choose to attempt any 5 questions out of these 10 questions. In case if candidate attempts more than 5 questions, first 5 attempted questions will be considered for marking.
- The answer to each question is a **NUMERICAL VALUE.**
- For each question, enter the correct numerical value (Answer should be rounded off to the nearest integer).
- Answer to each question will be evaluated according to the following marking scheme:

Full Marks : +4, if only correct answer is given.
Zero Marks : 0, if no answer is given.
Negative Marks : -1 for incorrect answer

---

1. How many compounds of the following give 1° alcohol on reacting with $LiAlH_4$.

(A) $CH_3—CHO$

(B) $CH_3—\overset{\overset{O}{\|}}{C}—CH_3$

(C) PhCHO

(D) $CH_3—\overset{\overset{O}{\|}}{C}—Cl$

(E) $C_2H_5—\overset{\overset{O}{\|}}{C}—O—\overset{\overset{O}{\|}}{C}—CH_3$

(F) $CH_3—\overset{\overset{O}{\|}}{C}—NH_2$

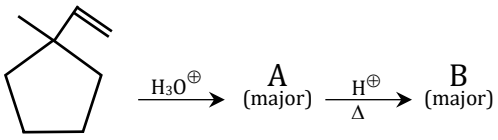
(G) $Ph—\overset{\overset{O}{\|}}{C}—C_2H_5$

(H) HCHO

(I) $C_2H_5—\overset{\overset{O}{\|}}{C}—C_3H_7$

CAE021

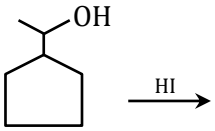
2. In the following reaction:



the number of α-hydrogen present in B compound:

CAE022

3.



Number of chiral carbon formed in the major product.

CAE023

4. When 2 - ethyl - 3 - methyl - 1 - pentene is treated with CH_3OH in H_2SO_4, how many different methoxy ethers would be formed in significant amount?

CAE024

5. How many of the following compounds can be reduced by $NaBH_4/H^{\oplus}$?

(1) $R-\overset{\overset{O}{\|}}{C}-H$ (2) $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$

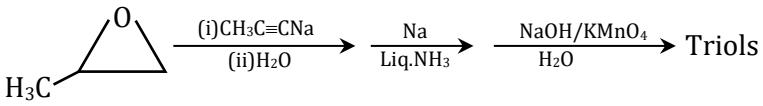
(3) $CH_3-C\equiv N$ (4) $CH_3-\overset{\overset{O}{\|}}{C}-OH$

(5) $CH_3-\overset{\overset{O}{\|}}{C}-O-CH_3$ (6) $CH_3-\overset{\overset{O}{\|}}{C}-O-\overset{\overset{O}{\|}}{C}-CH_3$

(7) $CH_3-\overset{\overset{O}{\|}}{C}-Cl$ (8) $R-\overset{\overset{O}{\|}}{C}-NH_2$

CAE025

6. Consider the reaction given below,



How many different triols isomers are formed?

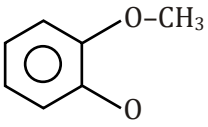
CAE026

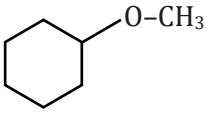
7. If propene undergoes oxidation to methyl oxirane. What is the net change in oxidation number of carbon atoms?

CAE027

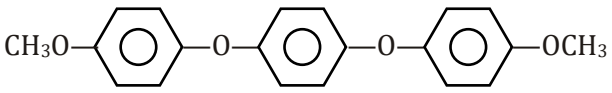
8. If (dl) or (±) 2-methyl butanoic acid were esterified by reaction with (dl) or (±) 2-butanol, how many optically active compounds would be present in the final equilibrium reaction mixture?

CAE028

9.  $\xrightarrow{\text{Conc.HI}}$ (a) mole HI is consumed

 $\xrightarrow{\text{Conc.HI}}$ (b) mole HI is consumed Sum of a + b =

CAE029

10. 

How many moles of HI consumed in above reaction ?

CAE030

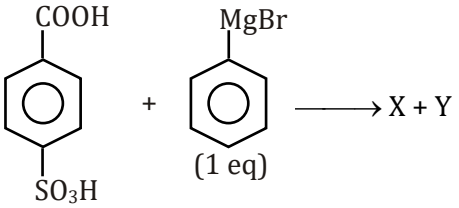
JEE (Advanced) Practice Paper

This paper is for yourself practice and assessment the discussion of this paper is optional though you can see PDF solutions or video solutions or solutions in hardcopy whichever is provided.

SECTION–I

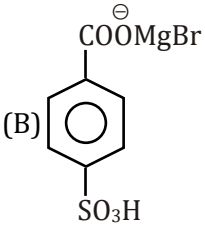
- This section contains **NINE** questions.
- Each question has FOUR options (A), (B), (C) and (D). ONLY ONE of these four options is correct.
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories:

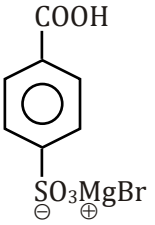
Full Marks : +3, if only the bubble corresponding to the correct option is darkened.
Zero Marks : 0, if none of the bubbles is darkened.
Negative Marks : –1 in all other cases

1. 

X and Y are respectively:

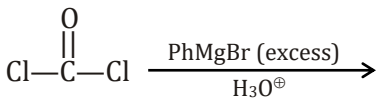
(A)  Only

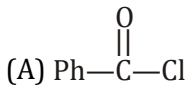
(B)  and 

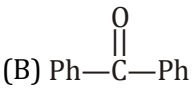
(C)  and 

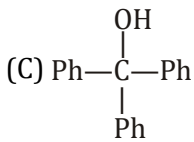
(D) None of these

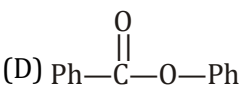
CAE051

2.  (X) ; Product (X) is :

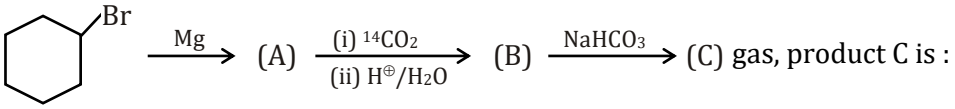
(A) 

(B) 

(C) 

(D) 

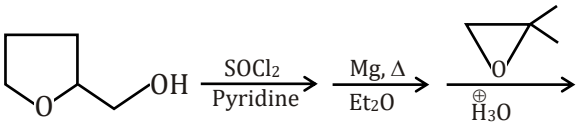
CAE052

3. 

(C) gas, product C is :

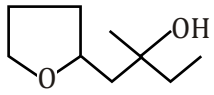
(A) CO
(B) $^{14}CO_2$
(C) CO_2
(D) A mixture $^{14}CO_2$ and CO_2

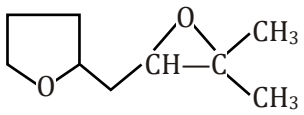
CAE053

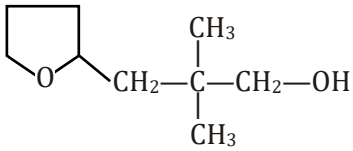
4. 

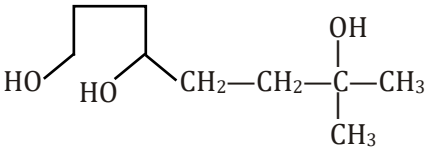
Product

Product of reaction is :

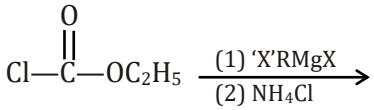
(A) 

(B) 

(C) 

(D) 

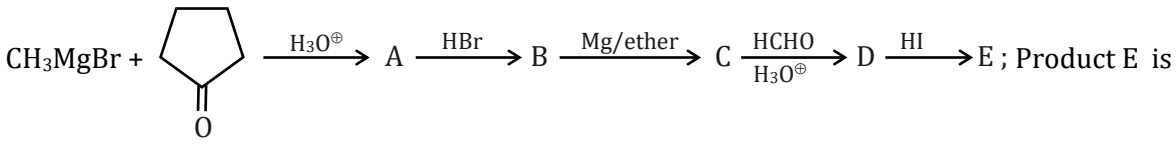
CAE054

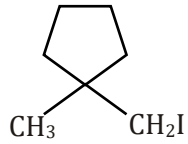
5. 

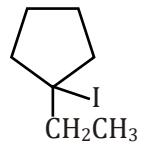
3° Alcohol. Find out value of 'X'.

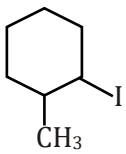
(A) 2
(B) 3
(C) 4
(D) 1

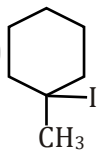
CAE055

6. 

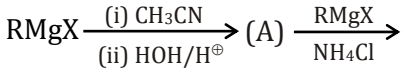
(A) 

(B) 

(C) 

(D) 

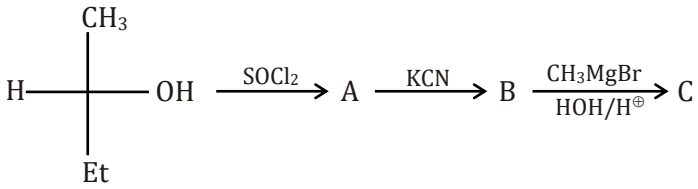
CAE056

7. 

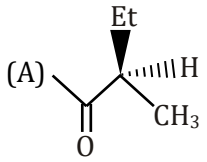
(B) , (B) will be :

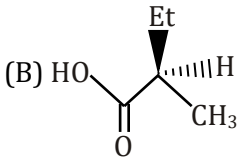
(A) 1° ROH
(B) 2° ROH
(C) 3° ROH
(D) Alkene

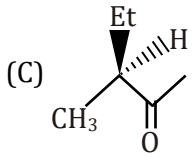
CAE057

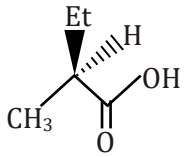
8. 

the final product C is:

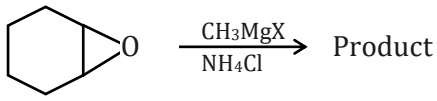
(A) 

(B) 

(C) 

(D) 

CAE058

9. 

What is the product ?

(A) Enantiomer (B) Diastereisomer (C) Meso (D) Achiral

CAE059

SECTION-II

- This section contains **FIVE** questions.
- Each question has **FOUR** options for correct answer(s). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct option(s).
- For each question, choose the correct option(s) to answer the question.
- Answer to each question will be evaluated according to the following marking scheme:

Full Marks : +4, if only (all) the correct option(s) is (are) chosen.

Partial Marks : +3, if all the four options are correct but ONLY three options are chosen.

Partial Marks : +2, if three or more options are correct but ONLY two options are chosen, both of which are correct options.

Partial Marks : +1, if two or more options are correct but ONLY one option is chosen and it is a correct option.

Zero Marks : 0, if none of the options is chosen (i.e. the question is unanswered).

Negative Marks: –2 in all other cases.

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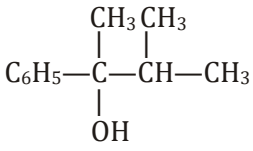
10. Which of the following reagents (A to D) would you not select to convert $C_6H_5COCH_3$ (acetophenone) to the following alcohol ?

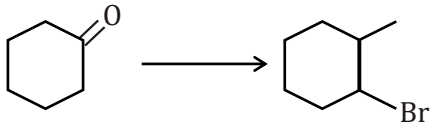


(A) $CH_3CH_2CH_2MgBr$ and hydrolysis (B) CH_3MgBr and acid hydrolysis

(C) $(CH_3)_2CHMgBr$ and acid hydrolysis (D) PhMgBr and acid hydrolysis

CAE060

11. Which combination of reagents will not bring about the following conversion ?

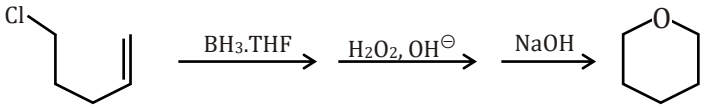


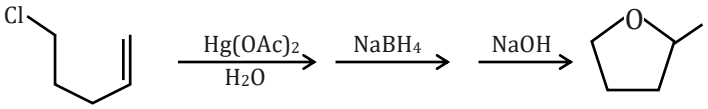
(A) $MeMgBr/H^{\oplus}$, H_2SO_4/Δ, HBr/H_2O_2, $h\nu$ (B) $MeMgBr/H^{\oplus}$, H_2SO_4/Δ, HBr

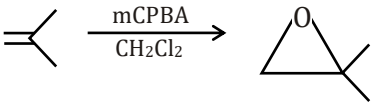
(C) $MeMgBr/H^{\oplus}$, HBr/CCl_4 (D) $MeMgBr$, NH_4Cl

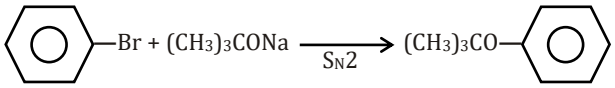
CAE061

12. Select the correct synthesis

(A) 

(B) 

(C) 

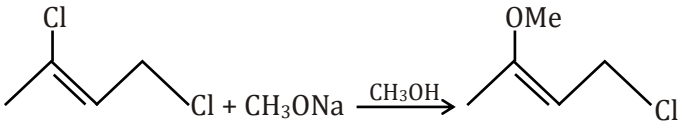
(D) 

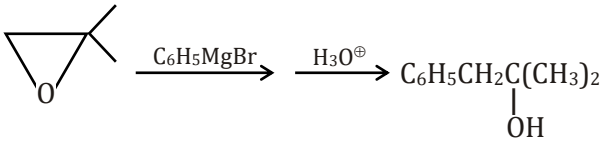
CAE062

13. Which of the following reaction is not possible ?

(A) $C_6H_5OH + HBr \longrightarrow C_6H_5Br + H_2O$

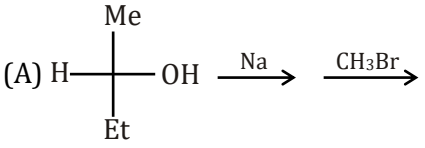
(B) $(CH_3)_3CCl + NaOCH_3 \longrightarrow (CH_3)_3COCH_3 + NaCl$

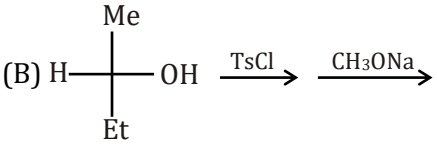
(C) 

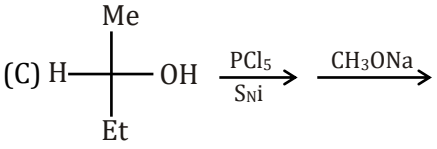
(D) 

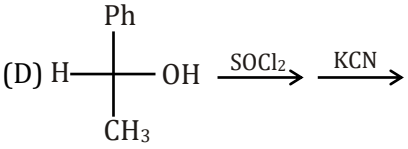
CAE063

14. Which of the following reactions proceeds with inversion of configuration ?

(A) 

(B) 

(C) 

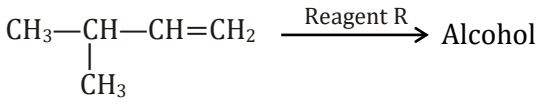
(D) 

CAE064

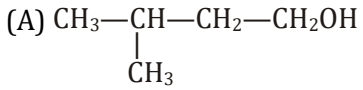
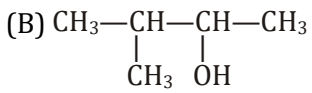
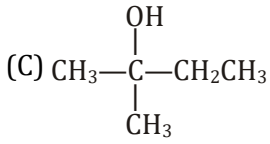
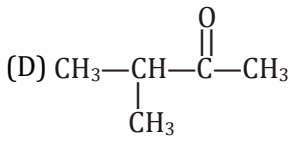
SECTION–III

- This section contains **ONE** question.
- Each question has matching lists. The codes for the lists have choices (A), (B), (C) and (D) out of which ONLY ONE is correct
- For each question, marks will be awarded in one of the following categories :

Full Marks : +3, if only the bubble corresponding to the correct option is darkened.
Zero Marks : 0, if none of the bubbles is darkened.
Negative Marks : –1, in all other cases.

15. 

which is true about alcohol and Reagent ?

List-I (Alcohol)	List-II (Reagent)
(A) 	(P) B_2H_6 , H_2O_2 / NaOH
(B) 	(Q) $Hg(OAc)_2$, H_2O / $NaBH_4$ followed by P.C.C.
(C) 	(R) $Hg(OAc)_2$, H_2O / $NaBH_4$
(D) 	(S) dil. H_2SO_4

(A) (A)→P; (B)→R; (C)→S; (D)→Q) (B) (A)→Q; (B)→R; (C)→S; (D)→P)
(C) (A)→P; (B)→S; (C)→R; (D)→Q) (D) (A)→S; (B)→R; (C)→P; (D)→Q)

CAE065

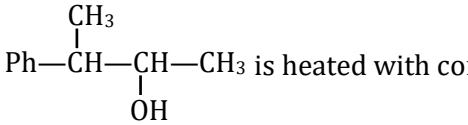
SECTION–IV

- This section contains **THREE** question.
- The answer to each question is a **NUMERICAL VALUE.**
- For each question, enter the correct numerical value (in decimal notation, truncated/rounded-off to the second decimal place; e.g. 6.25, 7.00, –0.33, –.30, 30.27, –127.30, if answer is 11.36777..... then both 11.36 and 11.37 will be correct).
- Answer to each question wil be evaluated according to the following marking scheme:

Full Marks : +3, if ONLY the correct numerical value is entered as answer.
Zero Marks : 0, in all other cases.

16. How many carbonyl compounds will give secondary alcohol with molecular formula $C_5H_{12}O$ after reduction with $LiAlH_4$? **CAE066**

17. What is the maximum number of moles of PhMgCl that can be consumed by one mole of phosgene? **CAE067**

18.  is heated with conc. H_2SO_4 at 170°C, then how many alkenes will obtained:

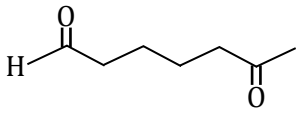
CAE068

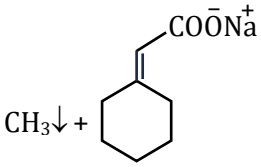
ANSWER KEY

EXERCISE - O

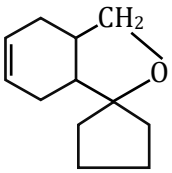
Que.	1	2	3	4	5	6	7	8	9	10
Ans.	D	A	D	A	D	C	C	C	C	A
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	D	C	C	B	D	C	D	B	B	C
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	A	C	A	C	A	A	B	D	B	C
Que.	31	32	33	34	35	36	37	38	39	40
Ans.	D	A	B	C	C	C	A	A	B	C
Que.	41	42	43	44	45	46	47	48	49	50
Ans.	B	A	A	C	B	B	C	A	A	CD

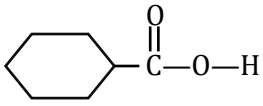
EXERCISE - S

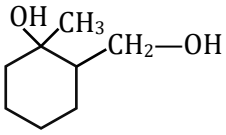
1. 
Major product

2. 

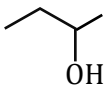
3. **(3)** **4.** **(3)**

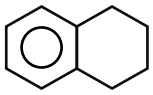
5. 
(b)

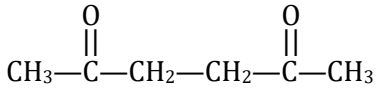
6. 

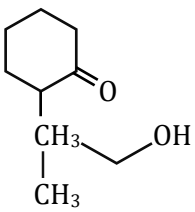
7. 

8. **1** = $LiAlH_4$, **3** = HIO_4 , **4** = $NaBH_4$

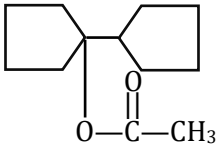
9. 

10. 

11. 

12. 

13. $CH_3-(CH_2)_3-C^{14}OOH$

14. 

EXERCISE - JEE (MAIN) PYQ

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	3	3	2	1	1	3	1	4	2	4
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	2	4	4	4	2	2	1	4	2	4
Que.	21	22	23	24	25	26	27			
Ans.	1	4	4	1	3	1	1			

EXERCISE - JEE (ADVANCED) PYQ

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	A	B	D	B	D	B	4	D	C	ACD
Que.	11									
Ans.	B									

JEE (MAIN) PRACTICE PAPER

Section-A	Q.	1	2	3	4	5	6	7	8	9	10
	A.	3	2	3	1	1	3	2	1	2	2
	Q.	11	12	13	14	15	16	17	18	19	20
	A.	2	3	4	1	2	1	2	1	3	2
Section-B	Q.	1	2	3	4	5	6	7	8	9	10
	A.	5	10	0	4	3	4	2	4	3	2

JEE (ADVANCED) PRACTICE PAPER

Section-I	Q.	1	2	3	4	5	6	7	8	9
	A.	C	C	C	D	B	D	C	A	A
Section-II	Q.	10	11	12	13	14				
	A.	ABD	BCD	ABC	ABC	BCD				
Section-III	Q.	15								
	A.	A								
Section-IV	Q.	16	17	18						
	A.	3	3	4						

Important Notes