

+2

GRAND TEST - VI

TEST - 14

LEVEL - 1

TOPIC : ORGANIC CHEMISTRY

- ◆ Alcohol, Phenol & Ethers
- ◆ Carbonyl Compounds

Test Date: 16.9.2017

Time: 02:30 Pm to 4:30 Pm

Empowered By:

TEST SERIES

PCB
QUANTUM⁺Plus

PCM
INTELLIQUEST



Dr. Sangeeta Khanna, Ph.D

S.C.O. 208 (TF) Sector 24-D, Chandigarh. Ph. No. 0172-2713289 (O), 09888007880 (M).

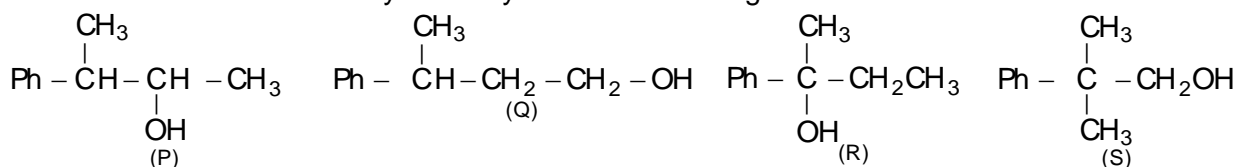
READ INSTRUCTIONS CAREFULLY

1. The test is of **1 hour** duration.
2. The maximum marks are **160**.
3. This test consists of **40** questions.
4. Keep your **mobiles switched off** during Test in the Halls.

(Single Correct Choice Type) Negative Marking [-1]

This Section contains **40 multiple choice questions**. Each question has four choices A), B), C) and D) out of which **ONLY ONE** is correct. **Marks: 40 x 4 = 160**

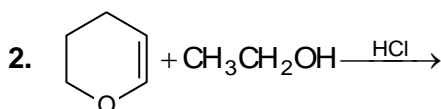
1. The relative rate of acid catalysed dehydration of following alcohols would be:

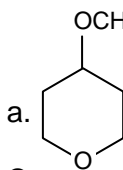
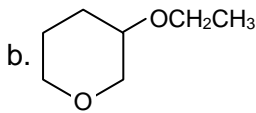
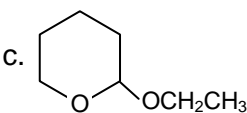
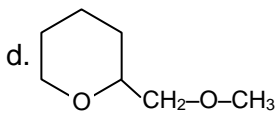


- a. $R > P > S > Q$ b. $R > S > P > Q$ c. $P > R > S > Q$ d. $R > S > Q > P$

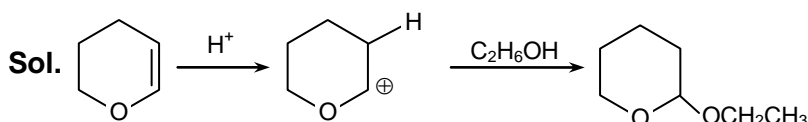
A

Sol. Rate of dehydration α -stability of alkene α -stability of carbocation.

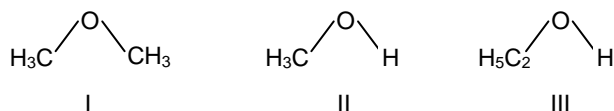


- a.  b.  c.  d. 

C



3. The order of solubility

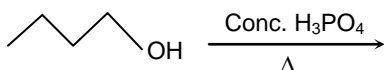


in water is:

- a. $I > II > III$ b. $I < II < III$ c. $II > III > I$ d. $II > I > III$

C

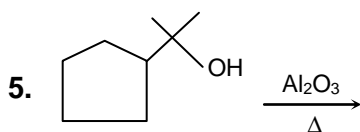
4. Find out major products of following reactions





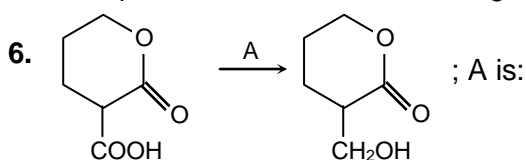
C

Sol. Stable alkene is the major product.



A

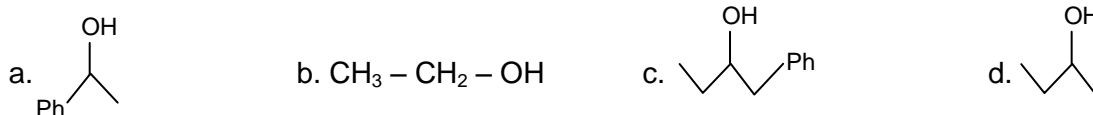
Sol. It is β -elimination without rearrangement to give stable alkene



A

Sol. Rest of the reagent will reduce ester.

7. Which of the following alcohols will not give iodoform test:

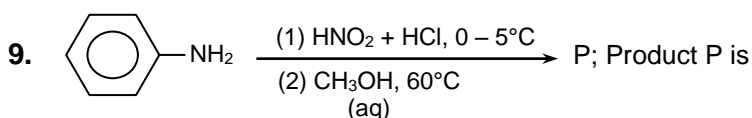


C

8. Nitration of which of the following compound is used to make Dyanamite.

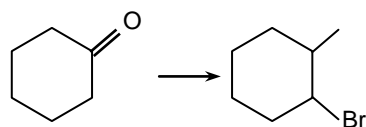


A

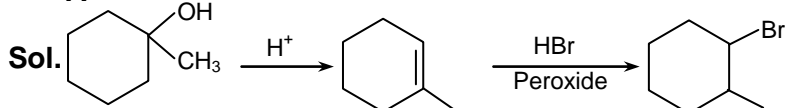


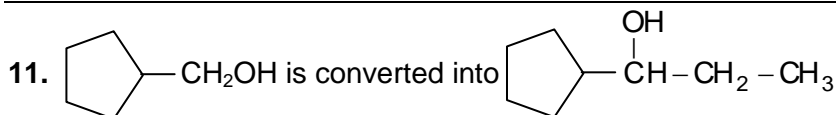
B

10. Which combination of reagents will bring about the following conversion?



A

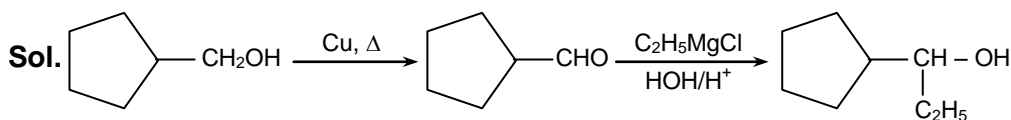




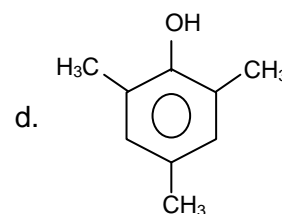
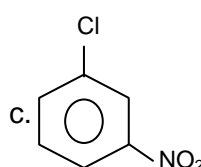
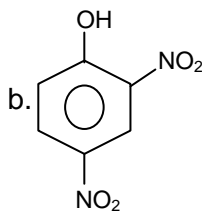
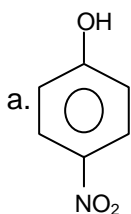
- a. $\text{Cu}/\Delta, \text{CH}_3\text{CH}_2\text{MgCl}/\text{H}_3\text{O}^{\oplus}$
 c. $\text{KMnO}_4, \text{CH}_3\text{CH}_2\text{MgCl}/\text{H}_3\text{O}^{\oplus}$

- b. $\text{aq. CrO}_3, \text{CH}_3\text{CH}_2\text{MgCl}/\text{H}_3\text{O}^{\oplus}$
 d. $\text{Na}_2\text{Cr}_2\text{O}_7/\text{H}^{\oplus}, \text{CH}_3\text{CH}_2\text{MgCl}/\text{H}_3\text{O}^{\oplus}$

A



12. Which of the following is most acidic?



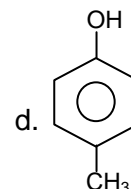
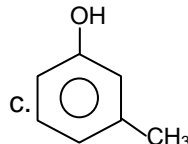
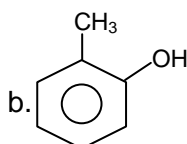
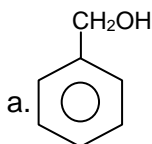
B

13. Reaction of phenol with phthalic anhydride in presence of conc. H_2SO_4 will give

- a. Aspirin b. phenyl salicylate c. phenolphthalein d. Terylene polyester

C

14. An aromatic compound.....with molecular formula $\text{C}_7\text{H}_8\text{O}$ turns orange colour of potassium dichromate green immediately. Compound is



A

Sol. Alcohol turns orange colour of $\text{K}_2\text{Cr}_2\text{O}_7$ solution green due to its reduction to Cr^{3+} . Thus the correct answer is 'A'

15. Rectified spirit obtained by fermentation contains 5% of water. So in order to remove it, rectified spirit is mixed with suitable quantity of benzene and heated. Benzene helps because:

- a. it is dehydrating agent and so removes water
 b. it forms the lower layer which retains all the water so that alcohol can be distilled off
 c. it forms an azeotropic mixture having high boiling point and thus allows the alcohol to distill over
 d. it forms low boiling azeotropic mixtures which distill over leaving behind pure alcohol which can then be distilled.

D

16. Which of the following alcohols would react most strongly with a Grignard reagent?

- a. CH_3OH b. $(\text{CH}_3)_3\text{COH}$ c. $\text{CH}_3\text{CHOHCH}_3$ d. $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2\text{OH}$

A

Sol. Methyl alcohol is the strongest acid and will thus react most vigorously with a Grignard reagent. The strongest acid is the primary alcohol with the shortest carbon chain.

17. The weakest base among the following is

- a. $(\text{CH}_3)_3\text{CO}^-$ b. $\text{CH}_3\text{CH}_2\text{O}^-$ c. $(\text{CH}_3)_2\text{CHO}^-$ d. $\text{C}_6\text{H}_5\text{O}^-$

D

Sol. Due to +I-effect of the CH_3 group, $(\text{CH}_3)_3\text{CO}^-$ is the strongest base. Further, due to resonance, $\text{C}_6\text{H}_5\text{O}^-$ is the weakest base.

18. Reaction of phenol with a mixture of KBrO_3 & KBr in acidic medium will give

- a. o-Bromophenol b. p-bromophenol c. 2,4,6-Tribromophenol d. No reaction

C

19. Which of the following ether will not form peroxide?

- a. dimethylether b. diethyl ether c. diphenyl ether d. Tetrahydrofuran

C

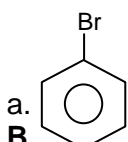
20. Which of the following is the major product, when sodium phenoxide react with CO_2 at 10 atm pressure & 430 K temperature followed by acidification.

- a. Sodium salicylate b. Salicylic acid c. Salicylaldehyde d. Benzoic acid

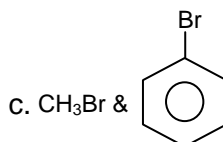
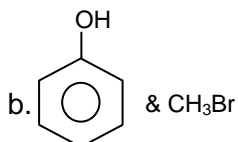
B

Sol. Kolbe's electrolysis

21. What will be the products formed when methoxybenzene react with HBr ?

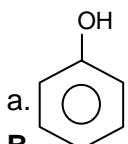


B

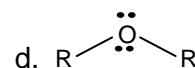
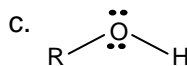
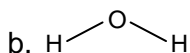


d. no reaction

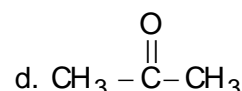
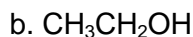
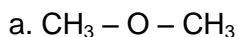
22. Which of the following will have highest dipole moment?



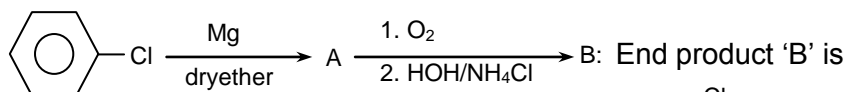
B

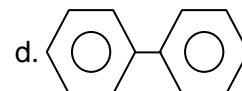
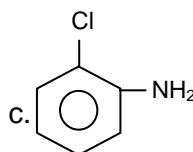
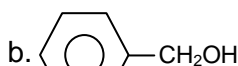
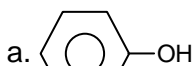


23. Which of the following will have lowest Boiling point?

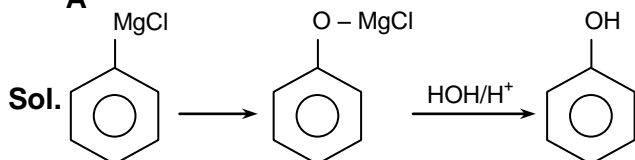


C

24. 



A

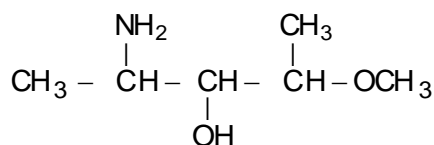


25. Which of the following enzyme is not involved in fermentation of starch.

- a. Diastase b. Invertase c. Zymase d. Maltase

B

26. What will be the correct IUPAC name of following compound.



- a. 2-Amino-1-methyl-1-methyl butan-2-ol
c. 2-Amino-4-methoxypentan-3-ol

- b. 4-Amino-4-methoxypentan-3-ol
d. 2-Amino-4-methoxy-4-methylbutan-2-ol

C

27. Which of the following will be most readily oxidized.

- a. CH_3OH b. $\text{C}_2\text{H}_5\text{OH}$ c. $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{OH}$ d. $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} - \text{OH}$

A

28. $\text{CH}_3 - \text{CH} = \text{CH} - \underset{\text{OH}}{\text{CH}} - \text{CH}_3 \xrightarrow{\text{X}} \text{CH}_3 - \text{CH} = \text{CH} - \text{COOH}$; X is

- a. NaOI b. $\text{KMnO}_4, \text{H}^+$ c. $\text{K}_2\text{Cr}_2\text{O}_7, \text{H}^+$ d. CrO_3

A

29. Which of the following Reagent is not used to test alcohol.

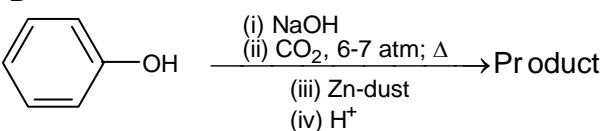
- a. Lucas Reagent b. Ceric ammonium nitrate
c. Victor mayer test d. NaOH

D

30. Saponification is

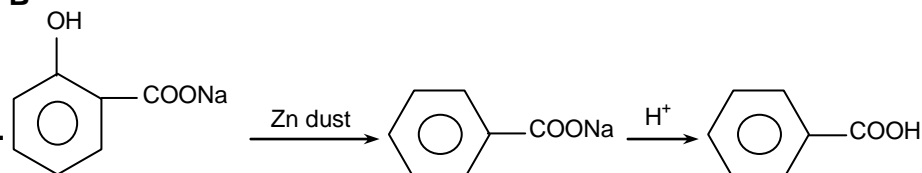
- a. alkaline hydrolysis of acid b. Acidic hydrolysis of ester
c. alkaline hydrolysis of ether d. Alkaline hydrolysis of ester

D

31.  Product is

- a. Salicylic acid b. Benzoic acid c. Benzene d. Phenol

B

Sol. 

32. Which of the following is not true for phenol?

- a. Phenol is acidic for Litmus test
b. Azo dye test of phenol require weakly acidic medium
c. Electrophilic substitution reactions of phenols takes place at all o & p-positions due to strong mesomeric effect to give trisubstituted product
d. Phenol does not give Friedel Craft reaction

B

Sol. It require Basic medium.

33. Which of the following is correct order as indicated.

a. $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{OH} < \text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2\text{OH} < \text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} - \text{OH}$ (Reaction with Lucas Reagent)

b. $\text{CH}_3\text{CH}_2\text{CH}_2 - \text{CH}_2\text{OH} < \text{CH}_3\text{CH}_2 - \underset{\text{CH}_3}{\text{CH}} - \text{OH} < \text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} - \text{OH}$ (Boiling point)

- c. $\text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{CH}_2\text{SH} < \text{CH}_3\text{CH}_2\text{-NH}_2$ (acidic strength)
 d. $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{OH} < \text{CH}_3 - \text{CH}_2 - \text{OH} < \text{CH}_3\text{OH}$ (Water solubility)

D

34. The correct increasing order of reactivity of $\text{C}=\text{O}$ group in the following compounds is:

- a. benzaldehyde < p-tolualdehyde < p-nitrobenzaldehyde < acetophenone
 b. p-tolualdehyde < p-nitrobenzaldehyde < acetophenone < benzaldehyde
 c. p-nitrobenzaldehyde < benzaldehyde < p-tolualdehyde < acetophenone
 d. acetophenone < p-tolualdehyde < benzaldehyde < p-nitrobenzaldehyde

D

35. Which of the following compounds will not undergo Cannizzaro reaction, when treated with 50% aqueous alkali:

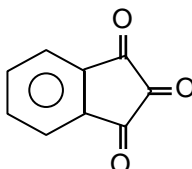
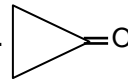
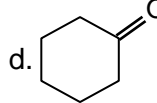
- a. $\text{Ph}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$ b.  c. Me_2CHCHO d. $\text{Ph}-\text{CH}_2-\text{CHO}$

D

Sol. (c) Exception although it has α -hydrogen it undergoes Cannizzaro reaction.

(d) $\text{Ph}-\text{CH}_2-\text{CHO}$ (due to presence of α -hydrogen it will not undergo Cannizzaro reaction)

36. Which of the following does not form a stable hydrate by the addition of H_2O ?

- a. $\text{Ph}-\overset{\text{O}}{\parallel}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{Ph}$ b.  c.  d. 

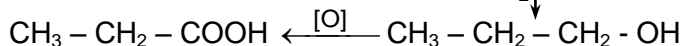
D

37. Identify the product Z in the series: $\text{CH}_3-\text{CH}_2\text{CN} \xrightarrow{\text{Ni}+\text{H}_2} \text{X} \xrightarrow{\text{HNO}_2} \text{Y} \xrightarrow{[\text{O}]} \text{Z}$
 (Z) is:

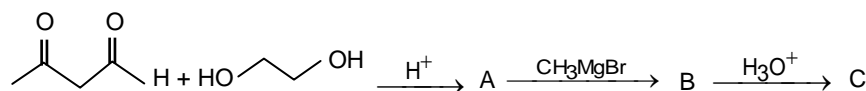
- a. $\text{CH}_3-\text{CH}_2\text{CHO}$ b. $\text{CH}_3-\text{CH}_2-\text{CH}_2\text{CONH}_2$
 c. $\text{CH}_3-\text{CH}_2-\text{COOH}$ d. $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{NHOH}$

C

Sol. $\text{CH}_3-\text{CH}_2-\text{CN} \xrightarrow{\text{Ni}+\text{H}_2} \text{CH}_3-\text{CH}_2-\text{CH}_2-\text{NH}_2$
 $\text{HNO}_2 \downarrow$

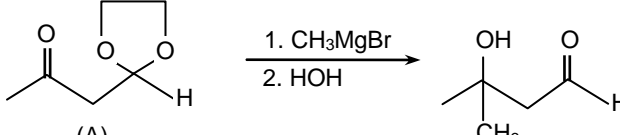


38. What is the product, C, of the following sequence of reactions?

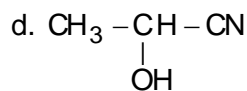
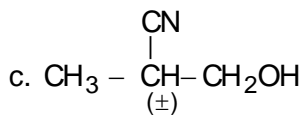
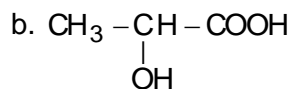
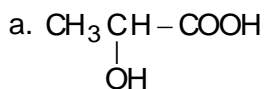
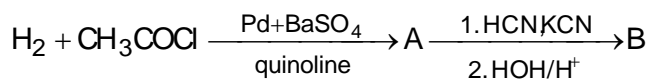


- a.  b.  c.  d. 

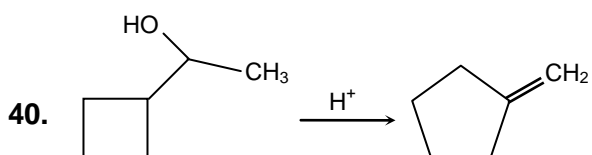
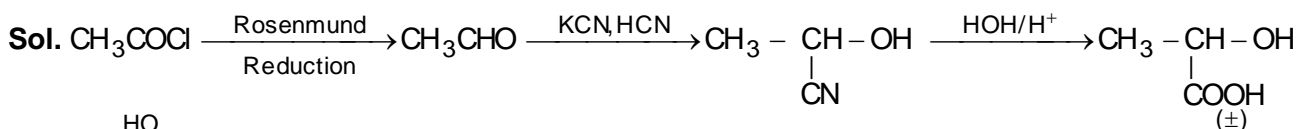
C

Sol. 

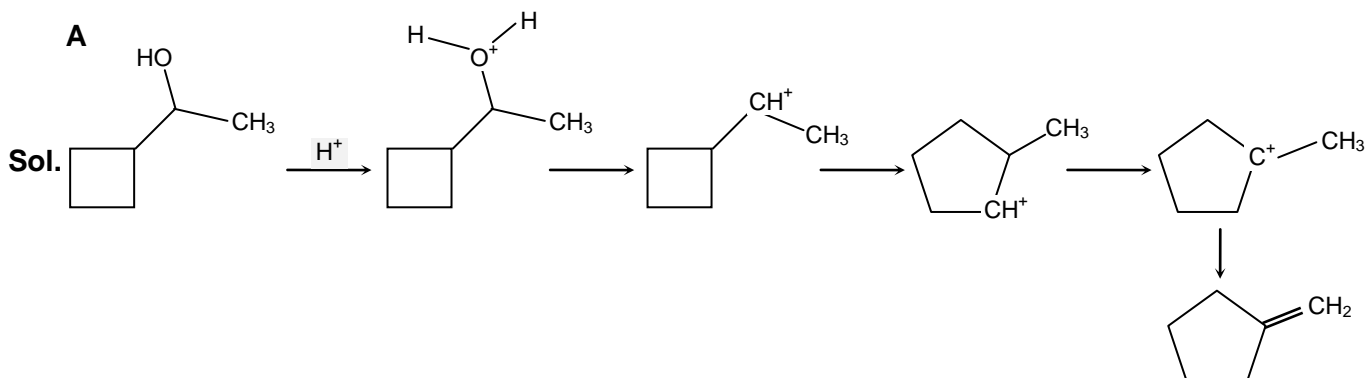
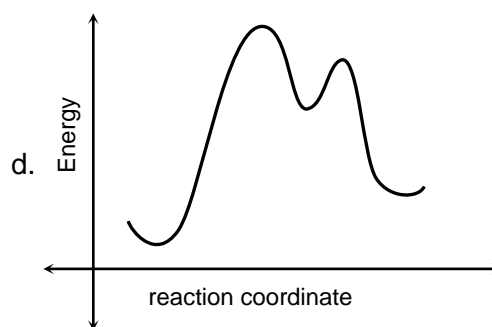
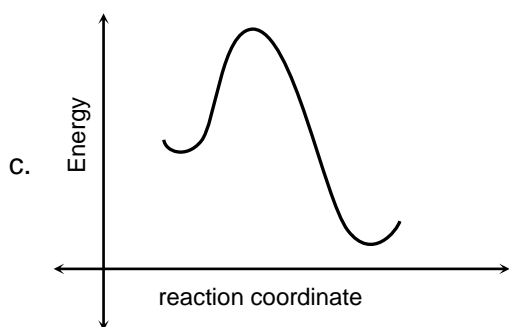
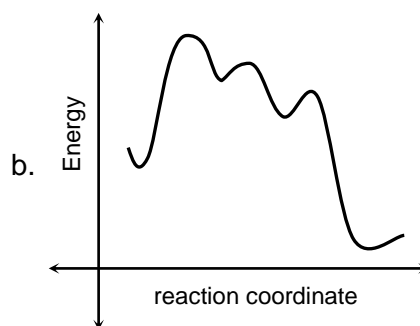
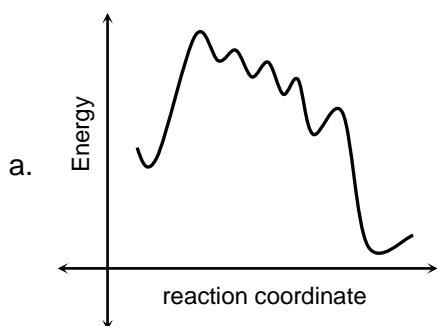
39. What will be the final product in the following reaction



B



Which of the following graphs is suitable

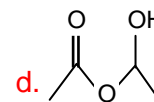
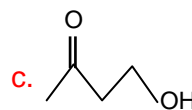


Extra

41. The alcohol which is most readily dehydrated is:

a. 2-butanol

b. 1-phenyl-1-propanol



B

42. Which of the following has the highest nucleophilicity?

a. F^-

b. OH^-

c. CH_3^-

d. NH_2^-

C

Sol. As electronegativity of the atom decreases ($F > O > N > C$), its tendency to donate a pair of electrons, i.e., nucleophilicity increases. Thus, CH_3^- has the highest nucleophilicity.