



CHEMISTRY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

Aldehydes and Ketones

Exercise

1. Predict the correct intermediate and product in the following reaction.

 $egin{aligned} H_3C-C-CH & rac{H_2O\,,H_2SO_4}{HgSO_4} \ \end{array} \ ext{Intermediate} & o ext{Product} \ (A) & (B) \end{aligned}$

$$\begin{array}{l} \mathsf{A}.\, A = H_3C - \mathop{C}_{|}_{|SO_4} = CH_2, B = H_3C - \mathop{C}_{|}_{|}_{|O} - CH_3 \\ \mathsf{B}.\, A = H_3C - \mathop{C}_{|}_{|OH} = CH_2, B = H_3C - \mathop{C}_{|}_{|SO_4} = CH_2 \\ \mathop{O}_{|OH} & \mathop{SO_4}^{|}_{|SO_4} \end{array}$$
$$\mathsf{C}.\, A = H_3C - \mathop{C}_{||OH} - CH_3, B = H_3C - C \equiv CH \\ \mathop{O}_{|OH} & \mathop{O}_{|OH} - CH_3 \\ \mathsf{D}.\, A = H_3C - \mathop{C}_{|OH} = CH_2, B = H_3C - \mathop{C}_{|OH} - CH_3 \\ \mathop{O}_{|OH} & \mathop{O}_{|OH} - CH_3 \\ \mathsf{D}.\, A = H_3C - \mathop{C}_{|OH} - CH_3 \\ \mathsf{D}.\, \mathsf{D}$$

Answer: D

Watch Video Solution

2. Of the following which is the product formed when cyclohexanone undergoes aldol condensation followed by heating?









Answer: B



3. Consider the reaction



Identify A, X, Y and Z

A. A-methoxymethane, X-ethanoic acid, Y-acetate ion, zhydrazine

B. A-methoxymethane, X-ethanol, Y-ethanoic acid, Z-

semicarbazide.

C. A-ethanal, X-acetaldelyde, Y-but-2-enal, Z-semicarbazone

D. A-ethanol, X-acetaldehyde, Y-butanone, Z-hydrazone

Answer: C



4. The product formed by the reaction of an aldehyde with a primary amine is:

A. ketone

B. Carboxylic acid

C. Aromatic acid

D. Schiff base

Answer: D



5. The correct structure of the product 'A' formed in the









Answer: B





lithium gives which of the following species?

A. cyclopentanonyl anion

B. cyclopentanonyl cation

C. cyclopentanonyl radical

D. cyclopentanonyl biradical

Answer: A





7. A single compound of the structure.



is obtained from ozonolysis of which of the following cyclic compounds?





Answer: A



8. Given,



Which of the given compounds can exhibit tautomerism?

A. I and II

B. I and III

C. II and III

D. I,II and III

Answer: A



9. An organic compound 'X' having molecular formula $C_5 H_{10}O$ yield phenylhydrazone and gives negative response to the iodoform test and Tollens test . It produces n-pentane on reduction. 'X' could be

A. Pentanal

B. 2-pentanone

C. 3-pentanone

D. n-amyl alcohol

Answer: C

Watch Video Solution

10. Reaction of carbonyl compound with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is:

A. a Grignard reagent

B. hydrazine in presence of feebly acidic solution

C. hydrocyanic acid

D. sodium hydrogen sulphite

Answer:

D Watch Video Solution

11. The oxidation of benzene by V_2O_5 in the presence of aire produces

A. benzoic anhydride

B. maleic anhydride

C. benzoic acid

D. benzaldehyde

Answer: B

Watch Video Solution

12. Reaction by which benzaldehyde cannot be prepared is :



Answer: D



13. CH_3CHO and $C_6H_5CH_2CHO$ can be distinguished chemically by

A. Benedict test

B. iodoform test

C. Tollen's reagent test

D. Fehling solution

Answer: B

Watch Video Solution

14. Acetone is treated with excess of ethanol in the presence of hydrochloric acid. The product obtained is

A.
$$CH_{3}CH_{2}CH_{2} - \overset{O}{C} - CH_{3}$$

B. $CH_{3}CH_{2}CH_{2} - \overset{O}{C} - CH_{2}CH_{2}CH_{3}$
C. $(C) (CH_{3})_{2}C \swarrow \overset{OH}{OC_{2}H_{5}}$
D. $(C) (CH_{3})_{2}C \swarrow \overset{OC_{2}H_{5}}{OC_{2}H_{5}}$





Answer: C

Watch Video Solution

16. The Clemmensen reduction of ketones is carried out in the

presence of

A. Zn-Hg with HCl

B. $LIAIH_4$

C. H_2 and Pt as catalyst

D. Glycol with KOH

Answer: A

17. Acetophenone when reacted with a base, C_2H_5ONa , yields a stable compound which has the structure :



Answer: A



18. A strong base can abstract an α -hydrogen from

A. alkene

B. amine

C. ketone

D. alkane

Answer: C

Watch Video Solution

19. The product formed in aldol condensation is

A. a beta-hydroxy acid

B. a beta-hydroxy aldehyde or a beta-hydroxy ketone

C. as alpha-hydroxy aldehyde or ketone

D. an alpha, beta unsaturated ester

Answer: B

20. Which of the following on treatment with aqueus sodium hydroxide will give corresponding alcohol and acid?

A. $C_6H_5CH_2CHO$

Watch Video Solution

B. C_6H_5CHO

 $\mathsf{C.}\,CH_3CH_2CH_2CHO$

$$\stackrel{O}{\stackrel{|}{\stackrel{}{}}}$$
D. $CH-\stackrel{|}{C}-CH_3$

Answer: B

Watch Video Solution

21. Reduction of aldehydes and ketones into hydrocarbons using hydrazine and sodium ethoxide is called :

A. Clemmensen reduction

B. Cope reduction

C. Dow reduction

D. Wolff-Kishner reduction

Answer: A



22. Nucleophilic addition reaction will be most favoured in

A.
$$CH_3-CH_2-CH_2\overset{ert O}{C}-CH_3$$

 $B.(CH_3)_2C = O$

 $\mathsf{C.}\,CH_3CH_2CHO$

 $\mathsf{D.}\, CH_3 CHO$

Answer: D



23. A carbonyl compound reacts with hydrogen cyanide to form cyanohydrin which on hydrolysis forms a recemic mixrture of α -hydroxy acid. The carbonyl compound D.

A. acetaldehyde

B. acetone

C. diethyl ketone

D. formaldehyde

Answer: A



24. The major organic product formed from the following reaction:





Answer: B



25. Which can be oxidized to the corresponding carbonyl compound?

A. 2-hydroxy propane

B. Ortho-nitro phenol

C. Phenol

D. 2-methyl-2-hydroxy propane

Answer: A



26. A and B in the following reactions are:



A. $A = RR'CH_2CN, \qquad B = NaOH$





27. In this reaction,

$CH_{3}CHO \rightarrow CH_{3}CH(OH)Cn \xrightarrow{H \cdot OH} CH_{3}CH(OH)COOH$

An asymmetric centre is generated. The acid obtained would be

A. 50%D+50% L-isomer

B. 20%D+80% L-isomer

C. D-isomer

D. L-isomer

Answer: A

View Text Solution

28. Polarisation of electrons in acrolein may be written as :

A.
$$\overset{\delta_+}{C}H_2 = CH - CH = \overset{\delta_-}{O}$$

B. $\overset{\delta_+}{C}H_2 = \overset{\delta_+}{C}H - CH = O$
C. $\overset{\delta_+}{C}H_2 = CH - CH = \overset{\delta_+}{O}$
D. $\overset{\delta_-}{C}H_2 = CH - \overset{\delta_+}{C}H = O$

Answer: A



29. During reduction of aldehydes with hydrazine and potassium hydroxide, the first is the formation of

A.
$$R-CH=N-NH_2$$

 $\mathsf{B}.\,R-C\equiv N$

C.
$$R - \displaystyle \mathop{C}_{\substack{||\ O}} - NH_2$$

D. $R - CH = NH$

Answer: A

View Text Solution

30. Aldol condensation will not take place in

A. HCHO

B. CH_3CHO

C. CH_3COCH_3

D. CH_3CH_2CHO

Answer: A





31. Which of the following does not given iodoform test :

A. 2-pentanone

B. ethanol

C. ethanal

D. 3-pentanone

Answer: D

Watch Video Solution

32. 1-phenyl ethanol can be prepared by the reaction of benzaldehyde with

A. methyl bromide

B. ethyl iodide and magnesium

C. methyl iodide and magnesium

D. methyl bromide and luminium bromide

Answer: C

View Text Solution

33. Ketones $(R_1COR_2): R_1 = R_2$ =alkyl group, can be

obtained in one step by

A. hydrolysis of esters

B. oxidation of primary alcohol

C. oxidation of tertiary alcohol

D. reaction of acid halide with alcohols

Answer: C

Watch Video Solution

34. $(CH_3)_3C - CHO$ does not undergo aldol condensation due to

A. three electron donating methyl groups

B. cleavage takig palce between -C - CHO bond

C. absence of alpha hydrogen atom in the molecule

D. bulky $(CH_3)_3C$ – group

Answer: C

35. Acetone reacts with iodine (I_2) to form iodoform in the

presence of

A. $CaCO_3$

 $\mathsf{B.}\, NaOH$

 $\mathsf{C}.KOH$

D. $MgCO_3$

Answer: B



36. Which of the following compound will undergo self - aldol condensation in the presence of cold dilute alkali?

A. $CH_2 = CH - CHO$

$$\mathsf{B.}\,CH\equiv C-CHO$$

 $\mathsf{C.}\, C_6H_5CHO$

 $\mathsf{D.}\,CH_3-CH_2CHO$

Answer: D

Watch Video Solution

37. Aldehydes and ketone will not form crystalline drivatives with

A. sidum bisulphite

B. phenyl hydrazine

C. semicarbazide hydrochloride

D. dihydrogen sodium phosphate

Answer: D



38. Benzaldehyde reacts with alcoholic KCN to give :

A. $C_6H_5CHOHCN$

B. $C_6H_5CHOHCOC_6H_5$

 $\mathsf{C.}\, C_6H_5CHOHCOOH$

D. $C_6H_5CHOHCHOCH_6H_5$

Answer: B

Watch Video Solution

39. Pinocolone is

A. 2,3-dimethyl-2,3-butanone

B. 3,3-dimethyl-2-butanone

C. 1-phenyl-2-propanone

D. 1,1-diphenyl-2-ethanediol

Answer: B



40.
$$(CH_3)_2C = CHCOCH_3$$
 can be oxidised to $(CH_3)_2C = CHCOOH$ by

A. chromic acid

B. NaOl

C. Cu to $300^{\,\circ}\,C$

D. $KMnO_4$

Answer: B



41. In which of the following the number of carbon atoms are not the same when carboxylic acid is obtained by oxiadation ?

A. CH_3COCH_3

 $\mathsf{B.} CCl_3CH_2CHO$

 $\mathsf{C.}\, CH_3 CH_2 CH_2 OH$

D. CH_3CH_2CHO

Answer: A

Watch Video Solution

42. Acetaldehyde reacts with

A. only electrophiles

B. only nucleophiles

C. only free radicals

D. both electrophiles and nucleophiles

Answer: B



43. The reagent which can be used to distinguish acetopheone

from benzophenone is :

A. 2,4-dinitrophenyl hydrazine

B. aqueous solution of $NaHSO_3$

C. Benedict reagent

D. I_2 and Na_2CO_3

Answer: D

Watch Video Solution

44.

 $3CH_{3}COCH_{3} \xrightarrow[(A)]{HCl} (CH_{3})_{2}C = CH - CO_{(B)} - CH = C(CH_{3})_{2}$

This polymer (B) is obtained when acetone is saturated with

HCl gas, B can be

A. Phorone

B. Formose

C. Diacetone alcohol

D. Mesityl oxide

Answer: A

O View Text Solution



condensation product.

It is obtained either by treating 3 molecules of acetone with conc. H_2SO_4 or passing propyne through a red -hot tube. The product is:

A. Phorone

B. Deacetonyl alcohol

C. Mesityl oxide

D. Mesitylene

Answer: D



46.

The above shown polymer is obtained when a carbonic compound is allowed to stand. It is a white solid. The polmer is

A. trioan

B. para-formaldehyde

C. formose

D. meta-aldehyde

Answer: A

47. Formalin is an aqueous solution of

Watch Video Solution

A. fluorescein

B. Formic acid

C. formaldehyde

D. furfuraldehdye

Answer: C



48. If formaldehyde and KOH are heated, then we get

A. methane

B. methyl alcohol

C. ethyl formate

D. acetylene

Answer: B

Watch Video Solution