

#### **CHEMISTRY**

## **BOOKS - MS CHOUHAN CHEMISTRY (HINGLISH)**

#### CARBOXYLIC ACID AND THEIR DERIVATIVES

**Exercise** 

#### 1. Identify C in the following sequence of reaction:

$$CO_2H \xrightarrow{SOCl_2} A \xrightarrow{NH_3} B \xrightarrow{P_4O_{10}} C(C_8H_{13}N)$$

$$\downarrow \text{heat}$$

D.



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**2.** Saponification (basic hydrolysis) of  $C_6H_5C\emptyset CH_3$  will yield:

$$[\emptyset = \mathsf{mass}$$
 -18 isotope of oxygen]

A. 
$$C_6H_5-\overset{O}{C}-\emptyset^-+H\emptyset CH_3$$

B. 
$$C_6H_5-\stackrel{|
ightarrow}{C}-O^-+H$$
Ø $CH_3$ 

C. 
$$C_6H_5CO^- + H\emptyset^-$$

D. 
$$C_6H_5CO^-_{\emptyset} + HOCH_3$$

#### **Answer: B**

3. 
$$\frac{\text{Me}_2\text{NH}}{\text{0°C, 2h}} \xrightarrow{\text{86.89\% (yield)}} (X)$$
(3 equivalent)

Product (X) of the reaction is:

3.

$$\begin{array}{c} \text{OH} \\ \mid \\ \text{C} - \text{NMe}_2 \\ \text{NMe}_2 \end{array}$$

$$\begin{array}{c} \text{C.} & \begin{array}{c} \text{C} \\ \text{C} \end{array} & \begin{array}{c} \text{NMe}_2 \\ \text{NMe}_2 \end{array}$$

$$(d) \bigcup_{\substack{\parallel \\ C - H}} C - H$$

Answer: A

D.

# **4.** Which of the following is the correct order of decarboxylation of $\beta$ -keto carboxylate anion?

$$\mathsf{A.}\, a > b > c > d$$

B. 
$$c > d > a > b$$

$$\mathsf{C}.\,c>d>b>a$$

$$\mathsf{D}.\,d>c>a>b$$

#### **Answer: C**



Complete the following

reaction

CIC CCI + 
$$CH_3 - NH_2$$
 - Product of the reaction is:

В.

C.

D.

**Answer: A** 



**6.** Which  $\beta$ -keto acid shown will not undergo decarboxylation?

A.

В

C. 
$$Ph-\stackrel{||}{C}-CH_2-CO_2H$$

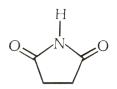
D. 
$$CH_3 - \overset{O}{C} - CH_2 - CO_2H$$

#### **Answer: B**



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**7.** Choose the response that matches the correct functional group classification with the following group of structural formulas.





- A. Anhydride Lactam Lactone
- B. Lactam Imide Lactone
- C. Imide Lactone Anhydride
- D. Imide Lactam Lactone

#### **Answer: D**



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$$CO_2H$$
  $\xrightarrow{(1) \text{ Et-Li}(3-\text{eq.})}$   $(P)$ ; Product  $(P)$  of the reaction is:  $(2) \text{ H}^+, \text{H}_2\text{O} \xrightarrow{(65\% \text{ yield})}$ 

of the reaction is:

QН

$$(c)$$
 $(c)$ 
 $(c)$ 



9.

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OH
OH
Conc. 
$$H_2SO_4$$
(Lactic acid)

 $COH$ 
 $COH$ 

Product (X) of the reaction is:



10.

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Product

(A) obtained is:



**11.** Which of the following acid on heating gives geometrical isomers as a product?

A. 
$$CH_3 - \overset{|}{CH} - CO_2H$$

C. 
$$CH_3-CH-CH_2-CO_2H$$

D. All of these

#### **Answer: D**



$$\begin{array}{c}
O \\
O \\
O \\
O
\end{array}$$

$$\begin{array}{c}
MeOH \\
O \\
O
\end{array}$$

$$A \xrightarrow{PCl_3} B \xrightarrow{MeNH_2} C ; Product (C) of the reaction is :$$

В.

(c) 
$$O$$
  $O$   $O$   $O$ 

#### **Answer: B**

D.



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$$\begin{array}{c}
O \\
& \longrightarrow D
\end{array}$$
LiAlH<sub>4</sub>  $\longrightarrow A$   $\longrightarrow PCC \longrightarrow B$   $\longrightarrow DH_2-NH_2 \longrightarrow C$ , Product (C) is:

13.

D. (d) 
$$NH_2$$



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

D.

#### **Answer: A**



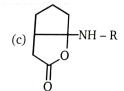
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15.

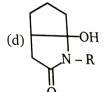
In above reaction identify major product (A) of the reaction:

(a) 
$$N - CH_2 - R$$

В.



C



#### **Answer: B**

D.



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**16.** An optically active compound 'X' having molecular formula  $C_4H_8O_3$  . It evolves  $CO_2$  with  $NaHCO_3$  . 'X' on reaction with  $LiAlH_4$  gives achiral compound. 'X' is:

A. 
$$CH_3CH_2CHCOOH$$
 $OH$ 

B. 
$$CH_3CHCOOH$$
 $Me$ 
 $CH_3CHCOOH$ 
C.  $|$ 
 $CH_2OH$ 
D.  $CH_3-CHCH_2COOH$ 

OH

#### **Answer: C**



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17. 
$$CH_3-\overset{||}{C}-O-CH_2-CH_3+H-\emptyset^- o \left(\emptyset=O^{18}\right)$$
 One of the product of the reaction is:



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$$CH_3CHCOOH \stackrel{\Delta}{\longrightarrow} \mathsf{Product}$$

OH

18. Identify final product in the following reaction,

$$\mathsf{B.}\, CH_2 = CHCO_2H$$

$$\operatorname{\mathsf{C}}.CH_3 - \overset{O}{\overset{|}{C}CO_2H}$$

D.  $CH_3CH_2OH$ 

#### **Answer: A**



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**19.** Select the final product from this sequence of reactions. Acetoacetic ester  $\xrightarrow{NaOEt} \xrightarrow{CH_3I} \xrightarrow{NaOEt} \xrightarrow{CH_3CH_2CH_2Br} \longrightarrow$ 

A. 
$$H_3C-CH_3$$
  $CH_3$   $CH_3$   $CH_2CH_2CH_3$   $CH_3$   $CH_3$   $CH_3$   $CH_4$   $CH_5$   $CH_5$   $CH_7$   $CH_7$ 

C. 
$$H_3C-\stackrel{H}{\overset{|}{C}}-CH_2COOC_2H_5$$
  $CH_2CH_2CH_3$   $CH_3$   $CH_3$   $CH_3CO-\stackrel{C}{\overset{|}{C}}-CH_2COOC_2H_5$ 

#### **Answer: A**



20.

В.

Et 
$$CO_2CH_2 - CH_3$$

$$O \longrightarrow O \longrightarrow O \longrightarrow O$$

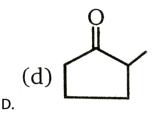
$$CO_2Et \longrightarrow CO_2Et$$

$$CO_2CH_2 - CH_3 \longrightarrow O \longrightarrow O$$

$$O \longrightarrow O \longrightarrow O$$

$$O \longrightarrow O$$

C.



#### **Answer: B**



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**21.** 
$$CH_2(CO_2Me)_2 + ? \xrightarrow[(ii)\ AcOH]{(ii)\ AcOH} CH(CO_2Me)_3$$

Which of the following reactants will complete the above reaction?

A. 
$$CH_2(CO_2Me)_2$$

B. 
$$(CO_2Me)_2$$

$$\mathsf{C.}\,\mathit{Cl}-\mathit{CO}_{2}\mathit{Me}$$

D. 
$$COCl_2$$

#### **Answer: C**



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**22.** Arrange the following in order of increasing reactivity (least ightarrow

$$CH_{3}\overset{O}{COCH_{2}CH_{3}}\overset{O}{CH_{3}}\overset{O}{CCl}\overset{O}{CH_{3}}\overset{O}{CNHCH_{3}}$$

$$\mathsf{A.}\,1<2<3$$

most) towards nucleophile

B. 
$$3 < 1 < 2$$

#### **Answer: B**



**23.** Choose the best sequence of reactions for transformation given. Semicolons indicate separate reaction steps to be used in the order shown.

$$H_3C$$
  $\longrightarrow$   $CO_2CH_3$   $\xrightarrow{?}$   $H_3C$   $\longrightarrow$   $C$   $\longrightarrow$   $C$ 

A. 
$$H_3O^+$$
 ,  $SOCl_2$  ,  $CH_3NH_2$ 

В. 
$$HO^- \, / \, H_2O, PBr_3, Mg, CO_2, H_3O^-, SOCl_2, CH_3NH_2$$

C. 
$$LiAlH_4,\,H_2O,\,HBr,\,Mg,\,CO_2,\,H_3O^+,\,SOCl_2,\,CH_3NH_2$$

D. None of these would yield the desired product

#### Answer: A



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**24.** A key step in the hydrplysis of acetamide in aqueous acid proceeds by nucleophilic addition of:

 $\left(CH_3C \atop 
ight)_2^O O + 2HN(CH_3)_2 
ightarrow CH_3CN(CH_3)_2 + CH_3CO_3^- + H_2$ 

 $\left(CH_3\overset{O}{C}
ight)_{2}O+CH_3CH_2OH
ightarrow CH_3COCH_2CH_3+CH_3CO_2H$ 

25. Which reaction is not possible for acetic anhydride?

A.  $H_3O^+$  to  $CH_3\overset{\cdot}{C}NH_2$ 

B.  $H_2O$  to  $CH_3 \stackrel{|}{C} NH_2$ 

C.  $H_3O^+$  to  $CH_3\stackrel{||}{C}NH_2$ 

D.  $HO^-$  to  $CH_3 \stackrel{||}{C} NH_2$ 

B.

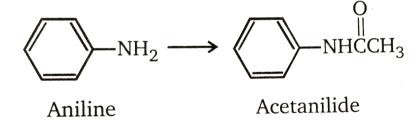
+OH

$$\mathsf{C.} \left( \begin{matrix} O \\ CH_3C \end{matrix} \right) O + C_6H_6 \overset{AICI_3}{\longrightarrow} CH_3\overset{O}{C}CI + CH_3CO_2H \\ \mathsf{D.} \left( \begin{matrix} O \\ CH_3C \end{matrix} \right) O + NaCI \to CH_3\overset{O}{C}CI + CH_3CO_2^-Na^+ \\ \\ 2$$

**Answer: D** 



**26.** All but one of the following compounds react with aniline to give acetanilide. Which one does not?



A. 
$$CH_3\overset{||}{C}-CI$$

C. 
$$CH_3\overset{O}{C}-H$$

D. 
$$(d)$$
  $OCCH_3$ 

#### **Answer: C**



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27. Which of the following best describes the nucleophilic addition step in the acid-catalyzed hydrolysis of acetonitrile  $(CH_3CN)$ ?

(a) 
$$H_3C - C \equiv N$$
:

(b) 
$$H_3C - C = N - I$$

(c) 
$$H_3C - C \equiv N$$

(d) 
$$H_3C - C \equiv N - H$$
  
D.

#### **Answer: D**



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**28.** The major product expected, when Phthalamide is treated with NaOH, is

A.

В.

C.

D.

#### **Answer: C**



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- 29. Which of the following acid remains unaffected on heating?
  - A. malonic acid
  - B. maleic acid
  - C. Fumaric acid
  - D. Succinic acid

#### **Answer: C**



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$$B_r \xrightarrow{h} B_r + CH_2(CO_2E_t)_2 \xrightarrow{NaOE_t} cyclic product$$

At which value of n the formation of six membered ring takes place?

$$\mathsf{A}.\,n=2$$

B. 
$$n=3$$

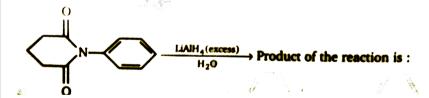
$$\mathsf{C}.\,n=5$$

$$D.n=6$$

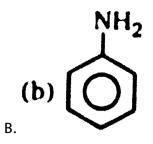


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**31.** Complete the following reaction



(a) 
$$CH_2OH$$
 $CH_2OH$ 



$$\begin{array}{c} \text{(d)} & \overset{\text{OH}}{\longrightarrow} \\ \text{N} & \overset{\text{OH}}{\longrightarrow} \end{array}$$

#### Answer: C



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**32.** Complete the following reaction

$$\begin{array}{c} CO_2H \\ CO_2H \\ \hline \\ CO_2H \end{array} \xrightarrow{\Delta} \begin{array}{c} \Delta \\ (-\Omega_2) \end{array} \ , \ \ \text{Product of the reaction is} :$$

A. cis-anhydride

B. trans-anhydride

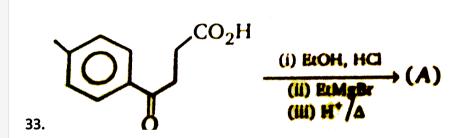
C. both (a) & (b)

D. mono-basic acid

Answer: A



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Product (A) of the reaction is:

A.

$$CO_2Et$$
 $CO_2Et$ 
 $CO_2Et$ 
 $CO_2Et$ 
 $CO_2Et$ 

(d) 
$$CH_3$$
  $CH_3$ 

#### Answer: A

D.



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$$CH_2-O-COR$$

**34.** 
$$CH-O-COR_2+3NaOH
ightarrow (A)+ ext{salt of fetty acid(soap)}$$

$$CH_2 - O - COR_3$$

Product (A) of the reaction is:

- A. Ethylene glycol
- B. Glycerol
- C. Glycceryltrinitrate (explosive)
- D. Cumene hydrogen peroxide

#### Answer: B



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**35.** 
$$CH_3-CH-OAc \xrightarrow{HO^-} OAc \xrightarrow{HO^-}$$
 Product of the reaction is:

A. 
$$CH_3-\mathop{CH}\limits_{(d)}^{Et}-OH$$

(d)

B. 
$$CH_3 - CH - OH$$

$$\mathsf{C.}\,CH_3 - CH - OH$$

D. 
$$CH_3 - C = CH_2$$

#### Answer: A



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Ph - CH = CH - C - O - H 
$$\xrightarrow{\text{(i) SOCI}_2}$$
 (a) Product (A) of the reaction is

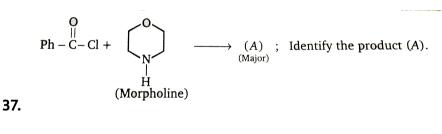
36. Product

(A) of the reaction is:

C. 
$$Ph-CH=CH-\overset{\mid\mid}{C}-H$$



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the product (A).

A. (a) 
$$Ph - C - O$$
  $N - H$ 

Identify

D. 
$$Ph-\stackrel{||}{C}-NH_2$$



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Above reaction is an example of:

- A. Esterification
- B. Saponification
- C. Hydrolysis
- D. Trans Esterification

#### **Answer: D**



39. Which of the following is an intermediate formed in the reaction

shown below

$$CH_3 - \overset{O}{C} - CI + NH_3 
ightarrow \,$$
 Intermediate  $ightarrow$  product.

A. 
$$CH_3 - \overset{\oplus}{N} H_3$$

$$\operatorname{B.}CH_3 - \overset{O}{\overset{\mid \mid}{C}} \oplus$$

$$\mathsf{C}.\,CI - egin{pmatrix} & & & \ & C & -CI \end{bmatrix}$$

#### Answer: D



Product is obtained in the above reaction is:

A. 
$$R-CO_2Na$$

C. Both (a) and (b)

D. None of these

#### Answer: C



**41.** The reaction of sodium with acetyl chloride proceeds through which of the following

A. (a) 
$$CH_3 - C - O$$
 +  $CH_3 - C - CI$ 

B. (c)  $CH_3 - C - O$  +  $CH_3 - C - CI$ 

$$CH_3 - C - O$$
 +  $CH_3 - C - CI$ 

$$CH_3 - C - O$$
 +  $CH_3 - C - CI$ 

#### **Answer: C**



**42.** Which of the major product of the following reaction?

$$CH_3 - \overset{O}{C} - CI \overset{H_2S}{\longrightarrow}$$
 product

A. 
$$CH_3-\stackrel{OH}{\overset{|}{C}}-CI_{SH}$$

B. 
$$CH_3 - \overset{\mid}{C} - SH$$

$$\mathsf{C.}\,CH_3 - \overset{S}{\overset{\mid}{C}} - CI$$

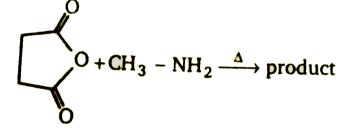
D. 
$$CH_3 - \overset{O}{C} - S - \overset{O}{C} - CH_3$$

#### **Answer: B**



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43. Which is the major product of the following reaction?



(a) 
$$N - CH_3$$

C. 
$$HO-\overset{O}{C}-CH_2-CH_2-\overset{O}{C}-NH-CH_3$$

D. 
$$CH_3-NH-\overset{O}{C}-CH_2-CH_2-\overset{O}{C}-NH-CH_3$$

#### **Answer: C**



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**44.** Ethanoic acid + 3-methyl-1-butanol  $\Longleftrightarrow_{\substack{\mathrm{traces} \\ H_2SO_4}} (A)$ , Compound (A) is:

**Answer: B** 



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**45.** Complete the following reaction

A. (a) 
$$CH_2 - OH$$

$$\begin{array}{c} \text{(d)} \\ \hline \\ \text{D.} \end{array} \begin{array}{c} \text{CH}_2 - \text{O} \\ \hline \\ \text{CH}_2 - \text{O} \\ \hline \end{array}$$

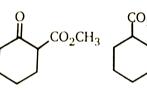
## Answer: A



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46. Which of the following compounds will undergo decarboxlation on





$$\bigcup_{3}^{\mathsf{CO}_2\mathsf{H}}$$

## **Answer: C**

**47.** Which one of the following is not an intermediate in the generally accepted mechanism for the reaction shown below?

A. 
$$CF_3\stackrel{||}{C}-\overset{\circ}{O}H$$

B. 
$$CF_3 \overset{|}{\overset{|}{C}} - \overset{|}{\overset{|}{\overset{|}{O}CH}}(CH_3)_2$$

C. 
$$CF_3 \overset{\circ}{\overset{\circ}{\underset{\mid}{C}}} - \overset{\circ}{\overset{\circ}{\underset{\mid}{C}}} CH(CH_3)_2$$

D. 
$$CF_3 \overset{|}{\overset{|}{\underset{:OH}{C}}} - \overset{...}{\overset{...}{\underset{:CCH}{CCH(CH_3)_2}}}$$

:OH

**Answer: B** 



RO 
$$CO_2H$$
  $\xrightarrow{\text{dry HCl gas} \atop \text{(major product):}}$  (A); Product A is:

48.

A.

(b) RO CO<sub>2</sub>Et

D. 
$$R-O-\overset{O}{\overset{||}{C}}-O-Et$$

#### Answer: B



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**49.** Identify the compound C in the following sequence:

$$(CH_3)_2CHCH_2C\equiv N \xrightarrow{HCI,H_2O} \;\; {\sf compound} \;\; A \xrightarrow[2.H_2O]{1.LiAIH_4} \;\; {\sf compound} \;\; {\sf B}$$

$$\xrightarrow{PCC}$$
 compound C

A. 
$$(CH_3)_2CH\overset{|}{C}CH_3$$

B.  $(CH_3)_2CHCH_2\overset{||}{C}OH$ 

$$\text{C.}\left(CH_{3}\right)_{2}CHCH_{2}\overset{O}{C}H$$

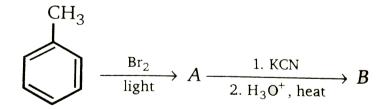
D.  ${(CH_3)}_2CHCCH_2OH$ 

## **Answer: C**



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## **50.** What is the final product (B) of this sequence?



A. (a) 
$$CO_2H$$

$$CH_2CO_2H$$

#### **Answer: D**



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**51.** Which of the following undergoes decarboxylation most readily on being heated?

#### **Answer: D**



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## **52.** What is compound Z?

$$CH_3CH_2CH_2Br \stackrel{NaCN}{\longrightarrow} X \stackrel{H_3O^+}{\underset{ ext{heat.}}{\longrightarrow}} Y \stackrel{CH_3CH_2OH}{\overset{H^+}{\longrightarrow}} Z$$

A. 
$$CH_3CH=CHCOH$$

$$\mathsf{B.}\,CH_3CH_2CH_2CH = NOCH_2CH_3$$

C. 
$$CH_3CH_2CH_2CH(OCH_2CH_3)_2$$

D. 
$$CH_3CH_2CH_2COCH_2CH_3$$

## Answer: D



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**53.** 
$$CH_3-CH=CH-CH_2-CO_2H \xrightarrow{\Delta} (X)$$
 (major), Producy (X)

A. 
$$CH_3-CH=CH-CH_3$$

$$\mathsf{B.}\,CH_3-\mathop{C}\limits_{\mid}=CH_2$$

$$\mathsf{C.}\,CH_3-CH_2-CH=CH_2$$

D. 
$$CH_3-CH=CH_2$$

## Answer: C

is:



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of (n) given compound will not evolve  $CO_2$  gas?

**54.**  $H-O-\overset{O}{C}-(CH_2)_n-\overset{O}{C}-O-H\xrightarrow{\Delta}$  product, At what value

$$A. \, n = 5$$

$$B. n = 4$$

$$\mathsf{C}.\,n=2$$

$$\mathsf{D}.\, n=1$$

#### **Answer: C**



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# $CO_2H$

 $\left(CH_{2}
ight)_{n}$ , If  $\left(n=4
ight)$  then di-carboxylic acid would be known as:

A. Malonic acid

 $CO_2H$ 

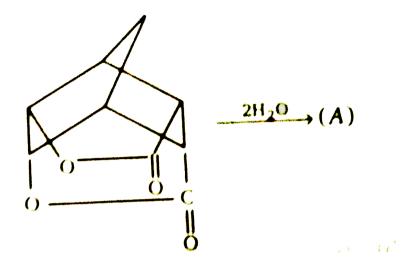
B. Succinic acid

C. Adipic acid

D. Oxalic acid

#### **Answer: C**





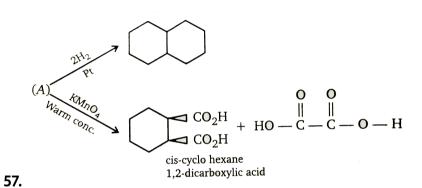
Product (A) of the above reaction is:

56.

## **Answer: C**



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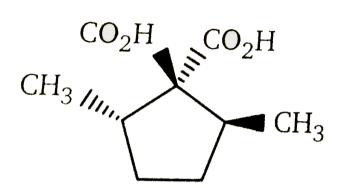


# Identify (A)

D.



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How many product will be formed when above compound undergo decarboxylation?

A. 0

58.

- B. 1
- C. 2
- D. 3

**Answer: B** 

$$\begin{array}{c|c} & H & H \\ \hline CH_3 & H & CH_3 \\ \hline H & CO_2H & H \end{array} \xrightarrow{CO_2H} \begin{array}{c} \Delta \\ \hline (-CO_2) \end{array} \rightarrow \text{Product of the reaction is}$$

59.

В.

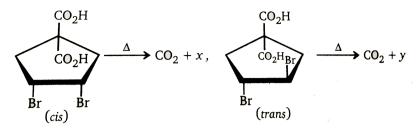
C. Both (a) and (b)

D. none of these

#### **Answer: C**



60. Products obtained in the given reactions are shown below.

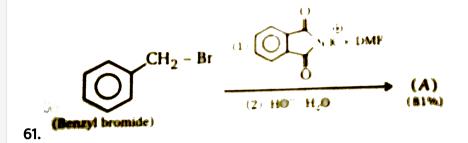


The number of possible products for x and y are:

- A. 1,1
- B. 1,2
- C. 2,1
- D. 2,2

**Answer: C** 





Product (A) of the above reaction is:

A. 
$$Ph-NH_2$$

B. 
$$Ph - CH_2 - NH_2$$

$$\mathsf{C.}\,Ph-CH_2-NH-CO_2H$$

D. 
$$Ph - CH_2 - NH - CHO$$

## **Answer: B**



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**62.** Which of the following pair is  $C_2$ -epimer?

A. D-Glucose, D-Maltose

B. D-Glucose, D-Mannose

C. D-Allose, D-Ribose

D. D-Glucose, D-Arabinose

## **Answer: B**



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63. Total number of enol possible for the compound formed during given reaction will be (including stereoisomer):

$$CH_{3}Mgbr+CH_{3}CH_{2}-\overset{O}{C}-CI
ightarrow$$

- A. 2
- B. 3
- C. 4
- D. 5

## Answer: B

# **64.** What is the product of the following reaction?

$$\begin{array}{c}
 & & \\
 & & \\
 & & \\
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OH
$$CH_3 \xrightarrow{\text{(i) KBrO}, \Delta} (X) \xrightarrow{\Delta} (Y)$$
COOH
$$(i) H^{+}$$

Hence the product (Y) in the above sequence of reactions, is:

A.

В.

C.

D. 
$$(d)$$
  $CH_3$ 

$$\begin{array}{c|c} O & & O \\ \parallel & & & \\ C-NH_2 & & & \\ & \text{and} & & & \\ & & & \\ \hline CH_3 & & & \\ & & & \\ \hline C_2H_5 & & \\ \end{array} \begin{array}{c} O \\ \parallel & \\ \hline \text{I5} \\ \hline \text{C}-NH_2 \\ \hline \text{OH/Br}_2 \\ \hline \text{(Intramolecular migration)} \end{array} \\ \begin{array}{c} Products \ are : \\ \end{array}$$

66.

$$\begin{array}{c|c} & & & \text{NH}_2 \\ & \text{and} & & & \text{NH}_2 \\ & & \text{Et} & & \\ \end{array}$$

(c) 
$$NH_2$$
 and  $NH_2$  Et

$$(d) \overbrace{ \begin{array}{c} NH_2 \\ \text{and} \\ CH_3 \end{array}}^{NH_2}$$
 D.

#### **Answer: B**



In the above reaction, if the reactant alcohol is a pure R-isomer the product would.

- A. have configuration inverted at the chiral atom
- B. be a racemic mixture
- C. have the same configuration at the chiral atom
- D. be optically inactive

#### Answer: C



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**68.** The order of  $S_N 1$  reactivity in aqueous aceic acid solution for the compounds

$$H_3C - \overset{O}{\overset{|}{C}} - \overset{O}{\overset{|}{C}} H_2 - CI \qquad H_3C - CH_2 - CH_2 - CI \qquad (H_3C)_3C - CI \qquad (3)$$

- A. 1 > 2 > 3
- ${\rm B.}\,1>3>2$
- ${\sf C.\,3} > 2 > 1$
- $\mathsf{D.}\,3>1>2$

## **Answer: C**



## 69. Match the column (I) and ((II). (Matrix)

	Reaction		Products formed
(a)	$HO_2C$ $CO_2H$ $D$ $D$ $D$	(p)	Diastereomers
(b)	$HO_2C$ $\longrightarrow$ $CO_2H$ $\longrightarrow$ $Et$	(q)	Racemic mixture
(c)	$CO_2H$ $CO_2H$ $CO_2H$ $CO_3H$	(r)	Meso compound
D	$CO_2H \longrightarrow CO_2H$	(s)	CO <sub>2</sub> gas will evolve



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Level 1 Q 1 To Q 30

$$\begin{array}{c|c} O \\ O \\ COCH_2CH_3 \end{array} \xrightarrow{KOH} \begin{array}{c} H_3O^{\dagger} \end{array} \xrightarrow{PCl_5} \begin{array}{c} LiAlH_4 \\ H^{\dagger}/\Delta \end{array} \xrightarrow{H^{\dagger}/\Delta} (X)$$

1. Product (X) is:

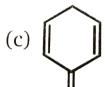
Product (X) is:



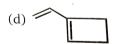
A.



В.



C.



D.

#### **Answer: B**



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A.

В.

## **Answer: D**



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# **Subjective Problems**

HO<sub>2</sub>C 
$$CO_2H$$
  $CO_2H$   $CO_2H$ 

1.

(Y) is including stereoisomers. Value of (X+Y) will be



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