GMR Classes

Carboxylic Acids

NOT PUBLISHED

Total Marks : 40.0
Duration : 1:00 hrs

Chemistry XII

1.

$CO(OEt)_2 \xrightarrow[ii)\ H_2O/H^+]{i)\ Excess\ RMgX}$ 'X'. The Ultimate Product 'X' is

(A) Aldehyde

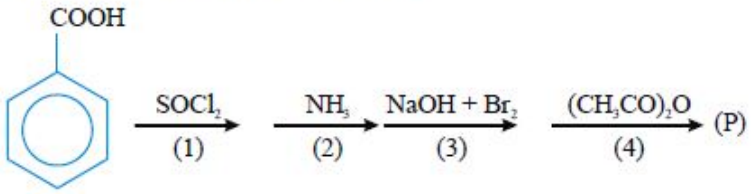
(B) Ketone

(C) t–alcohol

(D) Ester

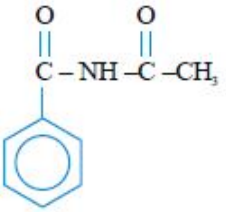
2.

The structure of product (P) is:



(A)

(B)



(C)

(D)

3. What should be the minimum value of 'n', at which $(CH_2)_n(COOH)_2$ will NOT evolve CO_2 gas on heating.

(A) 5

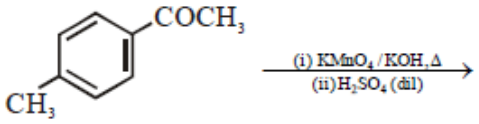
(B) 8

(C) 2

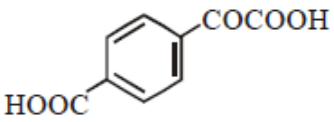
(D) 10

4.

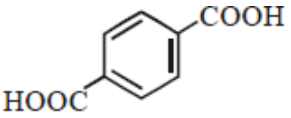
The major product of the following reaction is:



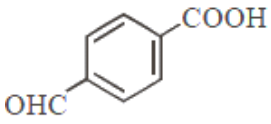
(A)



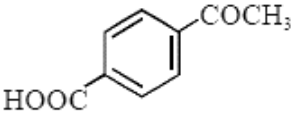
(B)



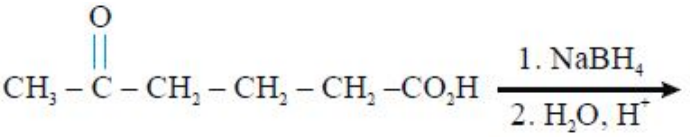
(C)



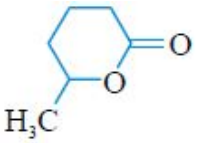
(D)



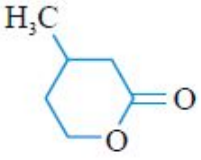
5.

End product of this conversion  **is**

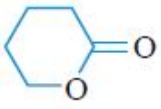
(A)



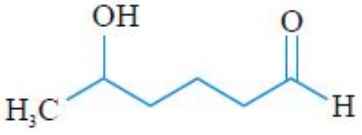
(B)



(C)

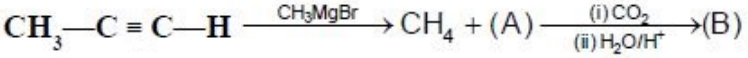


(D)



6.

In the reaction sequence:



(A) $CH_3- C \equiv C- CH_3$

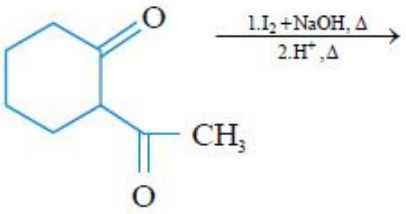
(B) $CH_3- C \equiv C- MgBr$

(C) $CH_3- C \equiv C- COOH$

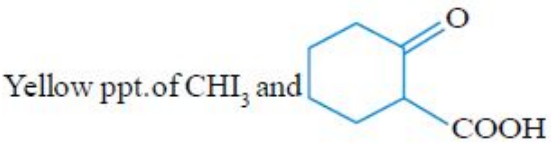
(D) $CH_3- CH_2- COOH$

7.

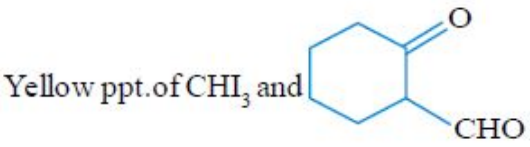
End product of the following sequence of reaction is



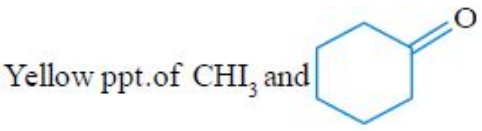
(A)



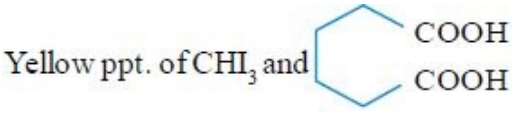
(B)



(C)

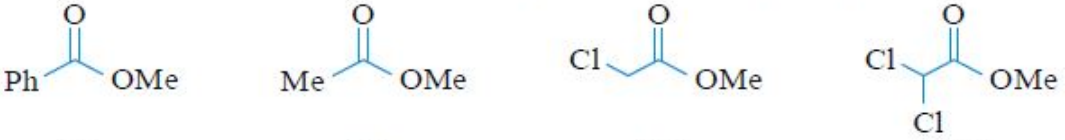


(D)



8.

The order of reactivity of the following esters towards hydrolysis is



(A) (I) > (II) > (III) > (IV)

(B) (II) > (I) > (III) > (IV)

(C) (IV) > (III) > (II) > (I)

(D) (IV) > (III) > (I) > (II)

9. R—CH_2—CH_2OH can be converted in R—CH_2CH_2COOH. The correct sequence of reagents is

(A) PBr_3, KCN, H_3O^+

(B) PBr_3, KCN, H_2

(C) KCN, H_3O^+

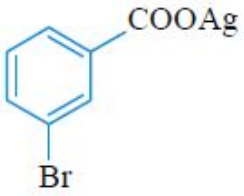
(D) HCN, PBr_3, H_3O^+

10. Silver benzoate will react with bromine in acetone to give

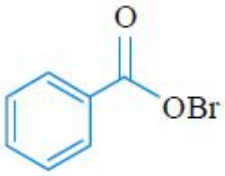
(A)

(B)

(C)



(D)



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KEY

1. (C) **2.** (D) **3.** (C)

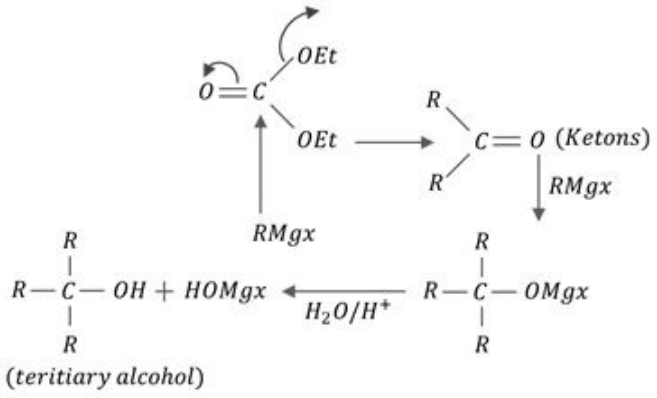
4. (B) **5.** (A) **6.** (C)

7. (C) **8.** (C) **9.** (A)

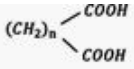
10. (B)

SOLUTIONS

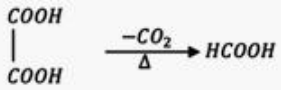
1.



2. Step 1-Acid chloride formation; Step 2-Amide formation; Step 3-Hoffomanu's Bromamide reaction

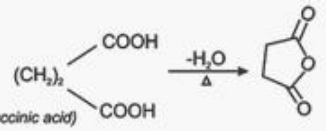


if n = 0



(1, 2 – dicarboxylic acid) (Formic acid).

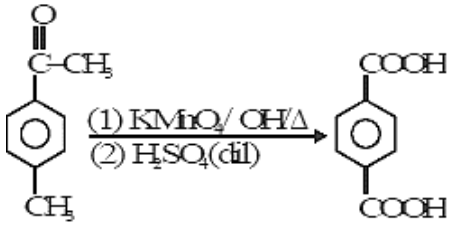
if n=2



- ✓ 1, 2 & 1, 3 dicarboxylic acids on heating lose $-CO_2$ to give acids.
- ✓ 1, 4 & 1, 5 dicarboxylic acids (n = 2, 3) on heating lose water to give anhydrides (cyclic).
- ✓ 1, 6 & 1, 7 dicarboxylic acids on heating lose both CO_2 & H_2O to give cyclic ketones.

3. ∴ n = 2; which will not evolve CO_2 on heating.

4.



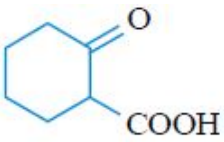
5.

$NaBH_4$ reduces reactant to $CH_3—\underset{\underset{OH}{|}}{CH}—CH_2—CH_2—CH_2—CO_2H$ which forms ester

6.

$$CH_3 - \underset{(A)}{C \equiv C} - Mg - Br \xrightarrow[0^\circ C]{CO_2/H_3O^+} \underset{(B)}{CH_3C \equiv C} - COOH$$

7.

Intermediate is 

Which loses CO_2 on heating (β -keto acid)

8. More the electron withdrawing groups, greater the positive charge density on 'C' and more readily the attack can occur.

9.

$$RCH_2CH_2OH \xrightarrow{PBr_3} RCH_2CH_2Br \xrightarrow{KCN} RCH_2CH_2CN$$
$$\xrightarrow{H_2O/H^+} RCH_2CH_2COOH$$

10. Borodine Hunsdiecker reaction