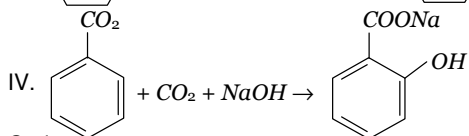
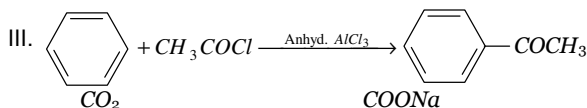
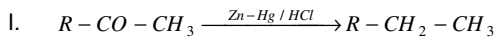


## Organic Quiz

- Which of the following compound gives a ketone with Grignard reagent  
(a) Formaldehyde (b) Ethyl alcohol (c) Methyl cyanide (d) Methyl iodide
- Toluene on treatment with  $CrO_2Cl_2$  gives  
(a) Chlorotoluene (b) Benzyl chloride (c) Benzaldehyde (d) Benzoic acid
- Match list I (Reaction) with list II (Name), and select the correct answer using the codes given below the lists

List I



List II

A. Friedel-Craft reaction

B. Kolbe's reaction

C. Clemmensen's reaction

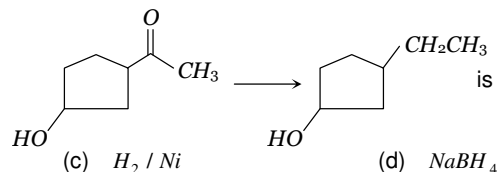
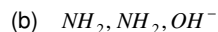
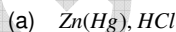
D. Cannizzaro's reaction

Codes

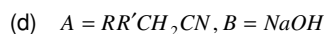
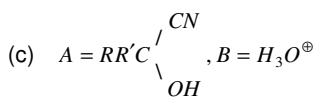
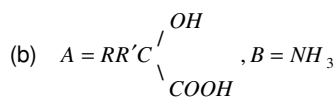
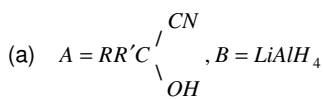
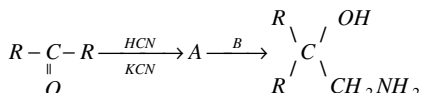
- (a) I-A, II-B, III-C, IV-D (b) I-B, II-A, III-C, IV-D (c) I-C, II-D, III-A, IV-B (d) I-D, II-C, III-A, IV-B
- Which one of the following pairs is not correctly matched  
(a)  $>C=O \xrightarrow{\text{Clemmensen's reduction}} >CH_2$   
(b)  $>C=O \xrightarrow{\text{Wolf-Kishner reduction}} >CHOH$   
(c)  $-COCl \xrightarrow{\text{Rosenmund's reduction}} CHO$   
(d)  $-C \equiv N \xrightarrow{\text{Stephen reduction}} CHO$
  - The end product in the following sequence of reaction is  $HC \equiv CH \xrightarrow[20\% H_2SO_4]{1\% HgSO_4} A \xrightarrow{CH_3MgX} B \xrightarrow{[O]} C$   
(a) Acetic acid (b) Isopropyl alcohol (c) Acetone (d) Ethanol
  - Identify the reactant  $X$  and the product  $Y$   $CH_3-CO-CH_3 + X \rightarrow (CH_3)_3C-OMg-Cl$   
Hydrolysis  
 $Y + Mg(OH)Cl$   
(a)  $X = MgCl_2; Y = CH_3CH=CH_2$   
(b)  $X = CH_3MgCl; Y = C_2H_5COCH_3$   
(c)  $X = CH_3MgCl; Y = (CH_3)_3C-OH$   
(d)  $X = C_2H_5MgCl; Y = (CH_3)_3C-OH$

- In the following sequence of reactions, the end product  $CH_3CHO \xrightarrow{HCN} (A) \xrightarrow{H_2O} (B)$   
(a)  $CH_3COOH$  (b)  $CH_3CHOHCOOH$  (c)  $CH_3CH_2NH_2$  (d)  $CH_3CONH_2$
- $CH_3CH=CH-CHO$  may be reduced to  $CH_3CH=CHCH_2OH$  using  
(a)  $H_2 / Pt$  (b)  $NaBH_4$  (c)  $[(CH_3)_2CHO]_3Al$  (d)  $Zn-Hg / HCl$

- The appropriate reagent for the following transformation



- A and B in the following reactions are



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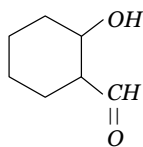
11. Consider reduction of 2-butanone  $B \xleftarrow[D_2O]{NaBD_4} 2\text{-butanone} \begin{cases} \xrightarrow[H_2O]{NaBD_4} A \\ \xrightarrow[D_2O]{NaBH_4} C \end{cases}$  A, B and C are

- (a)  $CH_3 \underset{\substack{| \\ OH}}{C} CH_2 CH_3$  in all cases
- (b)  $CH_3 \underset{\substack{| \\ D}}{C} CH_2 CH_3, CH_3 \underset{\substack{| \\ D}}{C} CH_2 CH_3, CH_3 \underset{\substack{| \\ H}}{C} CH_2 CH_3$
- (c)  $CH_3 \underset{\substack{| \\ D}}{C} CH_2 CH_3, CH_3 \underset{\substack{| \\ H}}{C} CH_2 CH_3, CH_3 \underset{\substack{| \\ H}}{C} CH_2 CH_3$
- (d)  $CH_3 \underset{\substack{| \\ D}}{C} CH_2 CH_3$  in all cases

12.  $2 \underset{\substack{| \\ CHO}}{COOH} \xrightarrow{NaOH} \underset{\substack{| \\ CH_2OH}}{COOH} + \underset{\substack{| \\ COONa}}{COOH}$ ; It is

- (a) Crossed cannizzaro reaction
- (b) Intermolecular cannizzaro reaction
- (c) Intramolecular cannizzaro reaction
- (d) None of these

13. A is formed by intramolecular aldol condensation of



- (a)  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 CH_2 CH_2 \overset{\substack{|| \\ O}}{C} H$
- (b)  $\overset{\substack{|| \\ O}}{C} H CH_2 CH_2 CH_2 CH_2 CH_2 \overset{\substack{|| \\ O}}{C} H$
- (c)  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 CH_2 \overset{\substack{|| \\ O}}{C} CH_3$
- (d) None of these

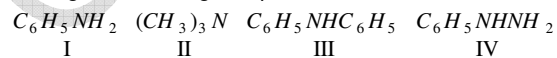
14.  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 CH_2 Cl \xrightarrow{CH_3MgBr} A$ , A is

- (a)  $CH_3 \underset{\substack{| \\ OH}}{\overset{\substack{CH_3 \\ |}}{C}} CH_2 CH_2 CH_2 Cl$
- (b)  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 CH_2 CH_3$
- (c) (d)

15.  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 \overset{\substack{|| \\ O}}{C} OCH_2 CH_3 \xrightarrow[(ii) H_3O^+]{(i) CH_3MgBr \text{ (one mol)}} A$ , A is formed in this reaction is

- (a)  $CH_3 \underset{\substack{| \\ CH_3}}{\overset{\substack{OH \\ |}}{C}} CH_2 CH_2 \overset{\substack{|| \\ O}}{C} OCH_2 CH_3$
- (b)  $CH_3 \overset{\substack{|| \\ O}}{C} CH_2 CH_2 \overset{\substack{|| \\ O}}{C} CH_3$
- (c) (d)  $CH_3 \underset{\substack{| \\ OH}}{\overset{\substack{CH_3 \\ |}}{C}} CH_2 CH_2 \overset{\substack{| \\ OH}}{\overset{\substack{CH_3 \\ |}}{C}} CH_3$

16. Among the following compounds, which will react with acetone to give a product containing C = N - bond



- (a) Only I    (b) Only IV    (c) I and IV    (d) I, III and IV

17. If 3-hexanone is reacted with  $NaBH_4$  followed by hydrolysis with  $D_2O$ , the product will be

- (a)  $CH_3 CH_2 CH(OH) CH_2 CH_2 CH_3$
- (b)  $CH_3 CH_2 CD(OH) CH_2 CH_2 CH_3$
- (c)  $CH_3 CH_2 CH(OD) CH_2 CH_2 CH_3$
- (d)  $CH_3 CH_2 CD(OD) CH_2 CH_2 CH_3$

18. Identify X in the sequence  $C_4H_8O \xrightarrow[(ii) H_2O / H^+]{(i) CH_3MgI} C_5H_{12}O \xrightarrow[575 K]{Cu} C_5H_{10}$

- (a)  $CH_3.CO.CH_2.CH_3$     (b)  $CH_3CH_2CH_2CHO$     (c)  $(CH_3)_2CHCHO$     (d)  $CH_3CH_2CH_2CH_2OH$

## GRAVITY CLASSES

19. End product of the following sequence of reaction is  $CH \equiv CH \xrightarrow{CH_3MgBr} \xrightarrow{CO_2 / H_3O^+} \xrightarrow{HgSO_4 / H_2SO_4} \xrightarrow{Ag_2O} \xrightarrow{\Delta}$

- (a)  $CH_3 \overset{O}{\parallel} C COOH$  (b)  $CH_3COOH$  (c)  $CH_3 \overset{O}{\parallel} C CHO$  (d)  $CH_3COOH$

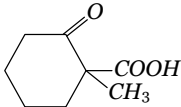
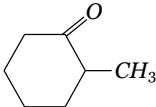
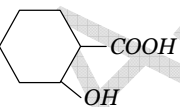
20. Compound 'A' (molecular formula  $C_3H_8O$ ) is treated with acidified potassium dichromate to form a product 'B' (molecular formula  $C_3H_6O$ ). 'B' forms a shining silver mirror on warming with ammonical silver nitrate. 'B' when treated with an aqueous solution of  $H_2NCONHNH_2 \cdot HCl$  and sodium acetate gives a product 'C'. identify the structure of 'C'

- (a)  $CH_3CH_2CH = NNHCONH_2$  (b)  $CH_3 - CH = \underset{\begin{array}{c} | \\ CH_3 \end{array}}{N} NH CONH_2$   
 (c)  $CH_3CH = \underset{\begin{array}{c} | \\ CH_3 \end{array}}{N} CO NHNH_2$  (d)  $CH_3CH_2CH - NCONHNH_2$

21. The product Z in the series is  $CH_2 = CH_2 \xrightarrow{HBr} X \xrightarrow{\text{Hydrolysis}} Y \xrightarrow[\text{I}_2 (\text{excess})]{Na_2CO_3} Z$

- (a)  $C_2H_5I$  (b)  $C_2H_5OH$  (c)  $CHI_3$  (d)  $CH_3CHO$

22.  , A is

- (a)  (b)  (c)  (d) 

23.  $C_2H_5O - \overset{O}{\parallel} C - OC_2H_5 \xrightarrow{2CH_3MgBr} A$ . Product A formed can

- (a) Give iodoform test (b) Further react with  $CH_3MgBr / H_3O^+$  to give *t*-butyl alcohol  
 (c) Be obtained by the ozonolysis of 2, 3-dimethyl-2-butene (d) All of the above

24. A new carbon-carbon bond formation is possible in Cannizzaro reaction ; Friedel craft reaction ; Clemmensen reduction ; Riemeer - Tiemann reaction

- (a) I (b) II and IV (c) All of these (d) None of these

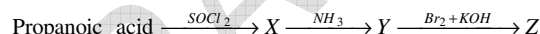
25. Ethyl isocyanide is prepared by the reaction between

- (a)  $C_2H_5Br$  and  $KCN$  (b)  $C_2H_5Br$  and  $AgCN$  (c)  $C_2H_5Br$  and  $HCN$  (d)  $C_2H_5Br$  and  $NH_3$

26. Gabriel phthalimide synthesis is used for the preparation of

- (a) Primary aromatic amines (b) Primary aliphatic amines (c) Secondary amines (d) Tertiary amines

27. Starting from propanoic acid, the following reactions were carried out



What is the compound Z

- (a)  $CH_3 - CH_2 - Br$  (b)  $CH_3 - CH_2 - NH_2$  (c)  $CH_3 - CH_2 - C \begin{array}{l} \nearrow O \\ \searrow Br \end{array}$  (d)  $CH_3 - CH_2 - CH_2 - NH_2$

28. Identify the product Z in the series  $CH_3CN \xrightarrow{Na + C_2H_5OH} X \xrightarrow{HNO_2} Y \xrightarrow[H_2SO_4]{K_2Cr_2O_7} Z$

- (a)  $CH_3CHO$  (b)  $CH_3CONH_2$  (c)  $CH_3COOH$  (d)  $CH_3CH_2NHOH$

29.  $RCOCl + 2Me_2NH \rightarrow A + Me_2\overset{+}{N}H_2Cl^-$ . Here A is

- (a)  $RCON \begin{array}{l} \nearrow Me \\ \searrow Me \end{array}$  (b)  $RCONH_2$  (c)  $RCONHMe$  (d)  $(RCO)_2NH$

30. In the reaction  $R - \overset{O}{\parallel} C - OH \xleftarrow{H_3O^+} X \xrightarrow{[H]} RCH_2NH_2$ ; X is

- (a) Isonitrile (b) Nitrile (c) Nitrite (d) Oxime

31. Decreasing order of basicity is

- (1)  $CH_3CONH_2$  (2)  $CH_3CH_2NH_2$  (3)  $Ph - CH_2CONH_2$

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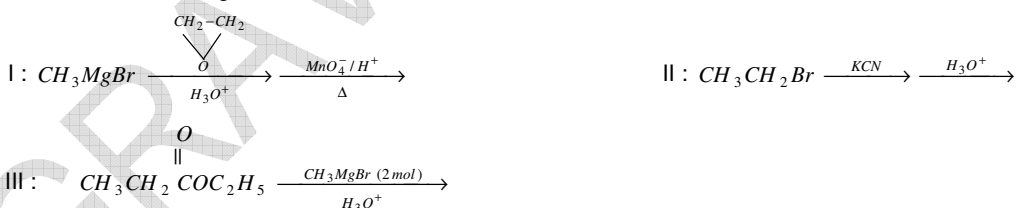
- (a)  $1 > 2 > 3$  (b)  $2 > 1 > 3$  (c)  $3 > 2 > 1$  (d) None of these
32. The decreasing order of the basic character of the three amines and ammonia is  
 (a)  $NH_3 > CH_3NH_2 > C_2H_5NH_2 > C_6H_5NH_2$  (b)  $C_2H_5NH_2 > CH_3NH_2 > NH_3 > C_6H_5NH_2$   
 (c)  $C_6H_5NH_2 > C_2H_5NH_2 > CH_3NH_2 > NH_3$  (d)  $CH_3NH_2 > C_2H_5NH_2 > C_6H_5NH_2 > NH_3$
33. The order of basic strength among the following amines in benzene solution is  
 (a)  $CH_3NH_2 > (CH_3)_3N > (CH_3)_2NH$  (b)  $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N$   
 (c)  $CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N$  (d)  $(CH_3)_3N > CH_3NH_2 > (CH_3)_2NH$
34. Arrange aniline (I), *p*-nitroaniline (II) and *p*-methoxyaniline (III) in decreasing order of basic strength  
 (a) III > I > II (b) I > II > III (c) II > I > III (d) III > II > I
35. Which among the following has the highest b.p.

- (a)  $CH_3CH_2CH_2NH_2$  (b)  $CH_3CH_2-NH-CH_3$  (c)  $CH_3-\overset{\overset{CH_3}{|}}{N}-CH_3$  (d)  $CH_3NH_2$

36. The final product C obtained in this reaction
- 
- (a)
- (b)
- (c)
- (d)

37. The compound A with following sequence of reaction gave benzoic acid  
 $A \xrightarrow{NaNO_2 / HCl} B \xrightarrow{KCN} C \xrightarrow{H_3O^+} \text{benzoic acid}$ . The compound A is  
 (a) Nitrobenzene (b) Aniline (c) Benzaldehyde (d) Amides
38. In the reaction  $CH_3CH_2NH_2 + CH_3MgBr \rightarrow X$ , the product is  
 (a)  $CH_3CH_3$  (b)  $CH_3CH_2CH_3$  (c)  $CH_3CH_2CH_2CH_3$  (d)  $CH_4$
39. 4-bromo-1-butanol (A) can be converted into 5-hydroxy pentanoic acid (B) by following method (s)  
 I:  $A \xrightarrow{Mg / ether} \xrightarrow[CO_2]{H_3O^+} B$  II:  $A \xrightarrow{KCN} \xrightarrow{H_3O^+} B$  III:  $A \xrightarrow{aq. KOH} \xrightarrow{KMnO_4 / H^+} B$
- Select the correct alternate  
 (a) I, II, III (b) I, II (c) II, III (d) II

40. Consider the following reactions



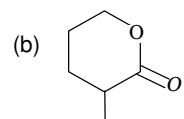
Propanoic acid is the final product in

- (a) I, II and III (b) I and II (c) I and III (d) II and III
41. The reaction  $RCH_2CH_2COOH \xrightarrow[Br_2]{Red P} R-CH_2-\underset{\underset{Br}{|}}{CH}-COOH$  is called  
 (a) Reimer-Tiemann reaction (b) Hell-Volhard Zelinsky reaction  
 (c) Cannizzaro reaction (d) Sandmeyer reaction
42. Which one of the following orders of acid strength is correct  
 (a)  $RCOOH > HC \equiv CH > HOH > ROH$  (b)  $RCOOH > ROH > HOH > HC \equiv CH$   
 (c)  $RCOOH > HOH > ROH > HC \equiv CH$  (d)  $RCOOH > HOH > HC \equiv CH > ROH$
43. Which of the following orders of relative strengths of acids is correct  
 (a)  $FCH_2COOH > ClCH_2COOH > BrCH_2COOH$  (b)  $ClCH_2COOH > BrCH_2COOH > FCH_2COOH$



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(a)



(c)

—

(d)

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