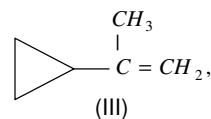
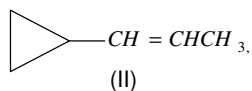
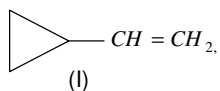


TEST - 1

1. In which of the following are all carbon atoms sp -hybridised
 (a) $CH_3 - CH = CH - CH_3$ (b) $CH_3 - C \equiv C - CH_3$ (c) $HC \equiv C - C \equiv CH$ (d) $CH_3CH_2 - C \equiv CH$
2. Which of the following statements are correct for butadiene $CH_2 = CH - CH = CH_2$
 (a) The $C_1 - C_2$ and $C_3 - C_4$ bonds are longer than a carbon-carbon double bond
 (b) The $C_1 - C_2$ and $C_3 - C_4$ bonds are shorter than a carbon-carbon double bond
 (c) The $C_2 - C_3$ bond is slightly shorter than a carbon-carbon single bond
 (d) The $C_2 - C_3$ bond is slightly longer than a carbon-carbon double bond
3. Basic strength of $CH \equiv \overset{\ominus}{C}$ (I), $CH_2 = \overset{\ominus}{C}H$ (II) and $CH_3 \overset{\ominus}{C}H_2$ (III) will be in order
 (a) $I < II < III$ (b) $II < III < I$ (c) $III < II < I$ (d) $III < I < II$
4. In the reaction $CH_3\overset{I}{C}ONH_2 \xrightarrow[\Delta]{P_2O_5} CH_3\overset{I}{C}N$, the hybridisation state of the carbon atom (I) changes from
 (a) sp^2 to sp (b) sp^3 to sp (c) sp^3 to sp^2 (d) sp^2 to sp^3
5. Arrange the acids CH_3CH_2COOH (I), $CH_2 = CH - COOH$ (II) and $HC \equiv C - COOH$ (III) in order of decrease in acidity
 (a) $I > II > III$ (b) $III > II > I$ (c) $II > I > III$ (d) $III > I > II$
6. Which of the following has highest boiling point
 (a) Butan-2-ol (b) Butane (c) Pentane (d) Ethane
7. Stability of following alkenes in the increasing order is
 $CH_3CH = CHCH_3$ (I) $CH_3C = \underset{\substack{| \\ H_3C}}{C}CH_3$ (II) $CH_3C = \underset{\substack{| \\ CH_3}}{CH}CH_2$ (III) $CH_3C = \underset{\substack{| \\ CH_3}}{CH}CH_3$ (IV)
- (a) $I < III < IV < II$ (b) $I < II < III < IV$ (c) $IV < III < II < I$ (d) $II < III < IV < I$
8. Carbon halogen bond is strongest among the following
 (a) CH_3Cl (b) CH_3Br (c) CH_3F (d) CH_3I
9. Which of the following methods can be used for the preparation of acetylene
 (a) $CH_3CHCl_2 + alc.KOH \rightarrow$ (b) $ClCH_2CH_2Cl + alc.KOH \rightarrow$
 (c) $ClCH_2CH_2Cl + NaNH_2 \xrightarrow[\Delta]{liq. NH_3}$ (d) None of these
10. Bottles containing C_6H_5I and $C_6H_5CH_2I$ lost their original labels. They were labelled A and B for testing. A and B were separately taken in test tubes and boiled with $NaOH$ solution. The end solution in each tube was made acidic with dilute HNO_3 and then some $AgNO_3$ solution was added, Substance B give a yellow precipitate, which one of the following statements is true for this experiment
 (a) A was C_6H_5I (b) A was $C_6H_5CH_2I$
 (c) B was C_6H_5I (d) Addition of HNO_3 was unnecessary
11. $CH_3CH_2\overset{Br}{\underset{|}{C}}HCH_2CH = CH_2 \xrightarrow{alcoholic KOH} A$ (Predominant), A is
 (a) $CH_3CH_2CH = CHCH = CH_2$ (b) $CH_3CH = CHCH_2CH = CH_2$
 (c) $CH_2 = CHCH_2CH_2CH = CH_2$ (d) $CH_3CH_2CH_2CH_2C \equiv CH$
12. In the sequence of the following reactions $CH_3OH \xrightarrow{HI} CH_3I \xrightarrow{KCN} CH_3CN \xrightarrow{\text{reduction}} X \xrightarrow{HNO_2} Y$; X and Y are respectively
 (a) $CH_3CH_2NH_2$ and CH_3CH_2OH (b) $CH_3CH_2NH_2$ and CH_3COOH
 (c) CH_3CH_2OH and CH_3CHO (d) CH_3OCH_3 and CH_3CHO
13. In the reaction $C_2H_5MgBr + H_2C \begin{array}{l} \diagup \\ O \end{array} CH_2 \xrightarrow{H_2O} A$
 A is
 (a) $C_2H_5CH_2CHO$ (b) $C_2H_5CH_2CH_2OH$ (c) $C_2H_5CH_2OH$ (d) C_2H_5CHO

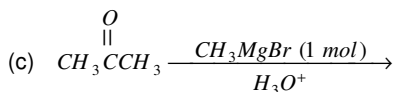
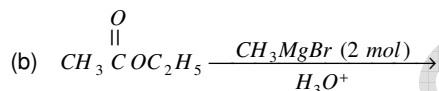
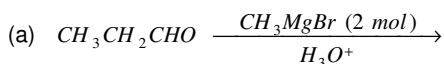
GRAVITY CLASSES

14. Rate of hydration of



will be in order

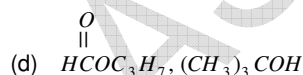
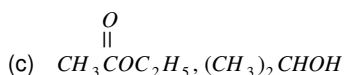
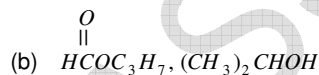
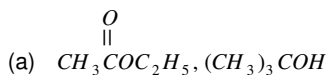
- (a) I < II < III (b) I < III < II (c) II < I < III (d) III < II < I

15. $(C_2H_5O)_2CO \xrightarrow[H_3O^+]{CH_3MgBr \text{ (excess)}} A$. A (alcohol) can also be obtained by

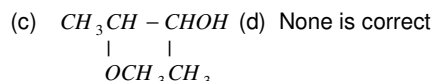
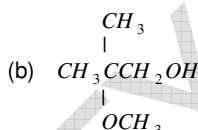
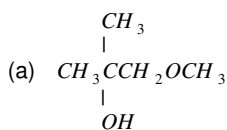
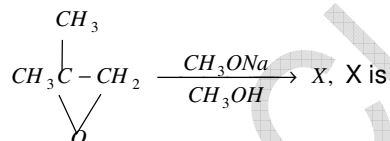
(d) As in (b) and (c)

16. Ester $A(C_4H_8O_2) + CH_3MgBr \xrightarrow[H_3O^+]{(2 \text{ parts})} C_4H_{10}O$ (alcohol B)

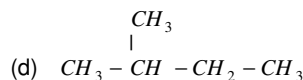
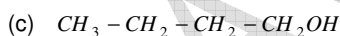
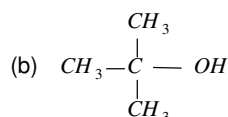
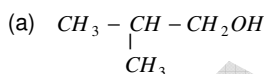
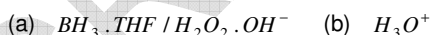
Alcohol B reacts fastest with Lucas reagent. Hence A and B are



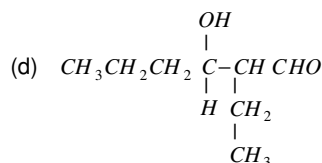
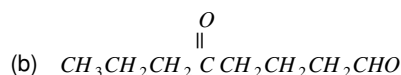
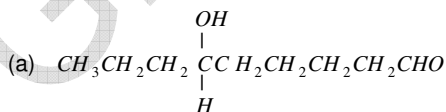
17.



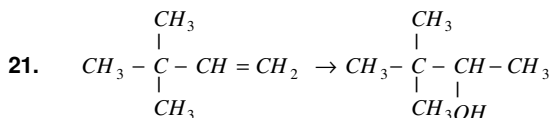
18. The compound which gives the most stable carbonium ion on dehydration is

19. $(CH_3)_3CCH=CH_2 \xrightarrow{X} (CH_3)_3CCH(OH)CH_3$, X can be

20. Butanal with dilute NaOH gives

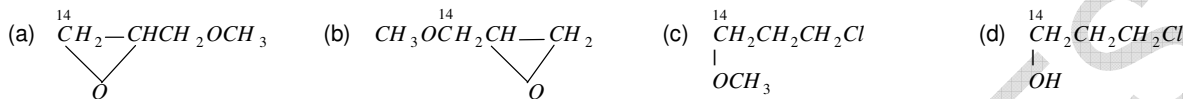
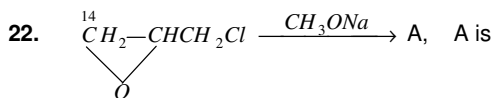


GRAVITY CLASSES

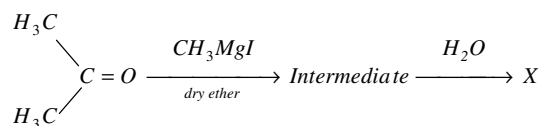


This change can be done by

- (a) Acid catalysed hydration (b) Oxymercuration-demercuration
(c) Hydroboration-oxidation (d) Any method mentioned above



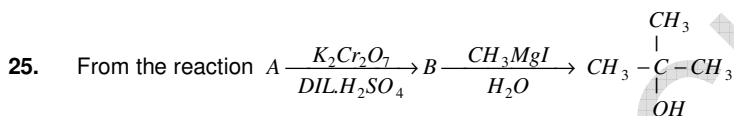
23. Identify X



- (a) CH_3OH (b) Ethyl alcohol (c) *t*-butyl alcohol (d) Methyl iodide

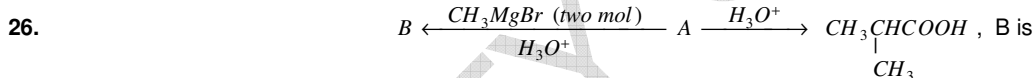
24. Compound 'A' reacts with PCl_5 to give 'B' which on treatment with KCN followed by hydrolysis give propanoic acid as the product. What is 'A'

- (a) Ethane (b) Propane (c) Ethyl chloride (d) Ethyl alcohol

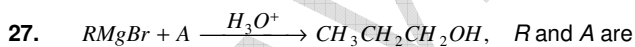
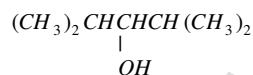


The reactant A is

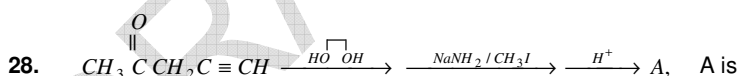
- (a) $\text{CH}_3\text{CHOHCH}_3$ (b) CH_3COCH_3 (c) $\text{C}_2\text{H}_5\text{OH}$ (d) CH_3COOH



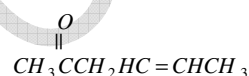
- (a) $(\text{CH}_3)_2\text{CHCOCH}_3$ (b) $(\text{CH}_3)_2\text{CHC}(\text{CH}_3)_2$ (c) $(\text{CH}_3)_2\text{CHCOCH}(\text{CH}_3)_2$ (d)



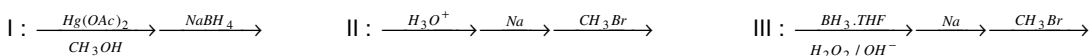
- (a) CH_3CH_2- and HCHO (b) CH_3- and $\begin{array}{c} \text{CH}_2 - \text{C} - \text{H}_2 \\ | \\ \text{O} \end{array}$ (c) Both are correct (d) None is correct



- (a)
$$\begin{array}{c} \text{O} \\ || \\ \text{CH}_3\text{CCH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \end{array}$$
 (b)
$$\begin{array}{c} \text{O} \\ || \\ \text{CH}_3\text{CH}_2\text{CCH}_2\text{CH}_2\text{CH}_3 \end{array}$$
 (c)
$$\begin{array}{c} \text{O} \\ || \\ \text{CH}_3\text{CCH}_2\text{C}\equiv\text{CCH}_3 \end{array}$$
 (d)



29. Consider the following synthesis

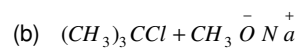
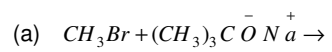


This change $\text{CH}_3\text{CH}=\text{CH}_2 \rightarrow \begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3\text{CHCHCH}_3 \\ | \\ \text{OCH}_3 \end{array}$ can be made by using

- (a) I, II and III (b) I and II (c) I and III (d) I only

GRAVITY CLASSES

30. Which of the following reactions can be used for the preparation of tert. butylmethyl ether



GRAVITY CLASSES