

Daily futorial officet 14	Daily Tutorial Sheet-14	Level - 3
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153.

$$A = H_{3}C$$

$$CH_{3}$$

$$C = H_{3}C$$

$$CH_{3}$$

$$D = H_{3}C$$

$$CH_{3}$$

$$CH_{3}$$

$$CH_{3}$$

**154.** (i) Since alkene (A) on oxidation gives a carbonyl compound (D) and an acid (E) of four carbon atoms each.

(ii) Hydration of (A) and (B) give the same alcohol.

$$H_3C$$
 $CH_3$ 
 $H_2O$ 
 $CH_3$ 
 $H_3C$ 
 $CH_3$ 
 $CH_3$ 

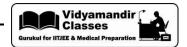
(iii) Alkene (A) and (B) give same alcohol on hydration and thus compound (B) can only be

$$H_3C$$
 $CH_3$ 
 $H_3C$ 
 $CH_3$ 
 $H_3C$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CCH_3$ 
 $CCH_3$ 

**155.** The given compound (A) is CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>2</sub>-C≡C-CH<sub>3</sub> which can be confirmed by the following reactions.

$$H_{3}C$$
 $H_{3}C$ 
 $H_{3}C$ 
 $H_{3}C$ 
 $H_{2}/Lindlar$ 
 $CH_{3}$ 
 $(2Z)-Hex-2-ene$ 
 $H_{1}/Lindlar$ 
 $(2Z)-Hex-2-ene$ 
 $H_{2}/Lindlar$ 
 $(2Z)-Hex-2-ene$ 

(ii) (A) is non-terminal alkyne as it does not form salt with ammonical silver nitrate.



(iii) (A) forms (E) with NaNH<sub>2</sub> which reacts with CH<sub>3</sub>I to give (F).

$$H_3$$
C  $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{NaNH}_2}$   $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{CH}_3}$   $\xrightarrow{\text{CH}_3}$ 

(iv) 
$$H_7C_3$$
  $H$   $C_3$   $C_3H_7COOH + CH_3COOH$ 
 $CH_3$   $C_3$   $C_3$ 

**156.** (i) (A) reacts with sodium in liquid ammonia and thus it is terminal alkyne i.e.  $C_3H_7C \equiv C - H$ .

$$\textbf{(ii)} \qquad \qquad \text{$\text{C}_3$H$}_7\text{$\text{C} \equiv \text{CH}$} \xrightarrow{\text{Na}} \text{$\text{C}_3$H$}_7\text{$\text{C} \equiv \text{C} - \text{Na}$} \xrightarrow{\text{$\text{CH}_3$} - \text{CH}_2$} \text{$\text{-CH}_2$} \xrightarrow{\text{$\text{CH}_2$} - \text{CH}_2$} \text{$\text{-CH}_2$} \xrightarrow{\text{$\text{CH}_3$} - \text{CH}_2$} \text{$\text{-CH}_2$} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$}} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$}} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$}} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$}} \xrightarrow{\text{$\text{C}_3$}} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{-CH}_2$}} \xrightarrow{\text{$\text{C}_3$}} \xrightarrow{\text{$\text{C}_3$}} \text{$\text{C}_3$}} \xrightarrow{\text{$\text{C}_3$}} \xrightarrow{$$

(iii) 
$$C_3H_7C = CH - \frac{HgSO_4}{H_2SO_4} + C_3H_7CO - CH_3$$

(iv) 
$$C_3H_7C = C - CH_2 - CH_2 - CH_3 \xrightarrow{[O]} CH_3 - CH_2 - CH_2 - COOH + C_3H_7COOH$$
(E)

Since (D) and (E) are isomers, thus the structure of (E) is

Thus (A) is 
$$H_3C$$
  $\longrightarrow$  CH and (B) is  $H_3C$ 

(c) 
$$CH_3 - CH_2 - CH_2 - C - CH_3$$

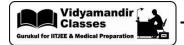
157. As alkane (A),  $C_5H_{12}$ , on chlorination gives four monochloro product and thus (A) is isopentane.

(C) & (D) give same stable product on dehydrohalogenation.

C and D 
$$\xrightarrow{\text{alc.KOH}}$$
 CH<sub>3</sub> – CH = C

(F) Me

Stable, saytzeff product



$$F \xrightarrow{\text{KMnO}_4} \text{CH}_3\text{COOK} + \text{CH}_3 - \text{C} - \text{CH}_3$$

$$\downarrow \text{H}^+ \text{(acidification)}$$

$$\downarrow \text{H}_3\text{C}$$

$$\text{CH}_3\text{COOH} + \text{C} = \text{O}$$

$$\text{(G)} \quad \text{H}_3\text{C} \quad \text{(H)}$$

**158.** Reaction of A with ammonical  $AgNO_3$  indicate presence of terminal alkyne. Hence structure of A is  $HC \equiv C - CH = CH_2.$ 

$$HC = C - CH = CH_{2}$$

$$(A)$$

$$HC = CH_{2} - CH_{3} - CH_{2} - CH_{2} - CH_{3}$$

$$HCI \rightarrow CI - CH = CH - CH = CH_{2}$$

$$(conjugated diene more stable)$$

Solution | Workbook-3 6 Hydrocarbons