BASICS OF IIT-NEET-14





- 31. During the preparation of ethane by Kolbe's electrolytic method using inert electrodes the pH of the electrolyte
 - (A) Increases progressively as the reaction proceeds
 - (B) Decreases progressively as the reaction proceeds
 - (C) Remains constant throughout the reaction
 - (D) May decrease of the the concentration of the electrolyte is not very high
- **32.** When n-butane is heated in the presence of AlCl₃/HCl it will be converted into
 - (A) Ethane
- (B) Propane
- (C) Butene
- (D) Isobutane

33. Alkene A
$$\xrightarrow{O_3/H_2O}$$
 $CH_3 - C - CH_3 + CH_3COOH + CH_3 - C - COOH OOH$

A can be -

(A)
$$CH_3$$
— C — CH = C
 CH_3
(C) Both correct

- \mathbf{I}_3
- $C(CH_3)_2$ || (B) $CH_3 - C - CH = HC - CH_3$
- (D) None is correct
- **34.** The addition of bromine to 1-Methyl Cyclohexene in 1,2-dichloroethane produces ____ dibromo derivatives: (A) 2 (B) 3 (C) 4 (D) 6
- **35.** O-xylene on reductive ozonolysis will give

$$\begin{array}{c|c} \operatorname{CH}_3 - \operatorname{C} = \operatorname{O} & \operatorname{CHO} \\ \operatorname{CH}_3 - \operatorname{C} = \operatorname{O} & \operatorname{CHO} \end{array}$$

(B)
$$\begin{array}{c} \mathrm{CH_3} - \mathrm{C} = \mathrm{O} \\ | \\ \mathrm{CH_3} - \mathrm{C} = \mathrm{O} \end{array}$$
 & $\mathrm{CH_3} - \mathrm{C} - \mathrm{CHO}$

(D)
$$\begin{array}{c} CH_3-C=O \\ | \\ CH_3-C=O \end{array}$$
 , $CH_3-C-CHO$ & $CHO \\ CHO$

36. B
$$\leftarrow \frac{BH_3/THF}{H_2O_2/OH^-}$$
 $\leftarrow CH_2 \xrightarrow{H_3O^+} A$

A and B are -

(A) Both
$$\sim$$
 CH₂OH

(C)
$$CH_2OH$$
, CH_3OH

(D)
$$CH_3$$
, CH_2OH

- **37.** Which has least heat of hydrogenation
 - (A) _____
- (B)
- (C)
- (D)



- 39. CH_3 -CH=CH- CH_3 \xrightarrow{x} product is Y (non-resolvable) then X can be –
 - (A) Br₂ water
 - (C) Cold alkaline KMnO₄

- (B) HCO₃H followed by H₃O⁺
- (D) all of the above

40.
$$\begin{array}{c} CH_3 \\ H \\ CH_3 \end{array} \xrightarrow[\text{(i) } CH_3COOOH \\ \text{(ii) } H_3O^{\oplus} \end{array}) X$$

The probable structure of 'X' is

$$(A) \begin{array}{c} H - \begin{array}{c} CH_3 \\ 18 \\ OH \\ OH \end{array} \\ CH_3 \end{array}$$

(C)
$$\begin{array}{c} CH_3 \\ H \longrightarrow OH \\ CH_3 \end{array}$$

$$\begin{array}{c|c} & CH_3\\ H & OH\\ H & OH\\ CH_3 \end{array}$$

- 41. Which alkene on heating with alkaline KMnO₄ solution gives acetone and a gas, which turns lime water milky –
 - (A) 2-Methyl-2-butene

(B) Isobutylene

(C) 1-Butene

(D) 2-Butene

- (A) Conc. H₂SO₄
- (B) alcoholic KOH
- (C) Et_3N

(D) t-BuOK

43.
$$\begin{array}{c}
 & CH_{3} \\
 & H - C \\
 & H - C \\
 & H - C \\
 & CH_{3}
\end{array}$$
alkaline KMnO₄ A, which is true about this reaction?

- (A) A is meso 2, 3-butane-di-ol formed by syn addition
- (B) A is meso 2, 3-butane-di-ol formed by anti addition
- (C) A is a racemic mixture of d and I, 2, 3-butane-di-ol formed by anti addition
- (D) A is a racemic mixture of d and 12,3-butane-di-ol formed by syn addition
- Mixture of one mole each of ethene and propyne on reaction with Na will form H_2 gas at S.T.P. 44.
 - (A) 22.4 L
- (B) 11.2 L
- (C) 33.6 L
- (D) 44.8 L

- **45.** Acetylene may be prepared using Kolbe's electrolytic method employing
 - (A) Potassium acetate
- (B) Potassium succinate
- (C) Potassium fumarate
- (D) None of these
- **46.** Ethyl iodide and n-propyl iodide are allowed to undergo wurtz reaction. The alkane which will not be obtained in this reaction is :
 - (A) butane
- (B) propane
- (C) pentane
- (D) hexane
- **47.** On catalytic reduction (H_2 / Pt) how many alkenes will give 2-methylbutane?
 - (A) 1

(B) 2

(C)3

- (D) 4
- **48.** The decreasing order of anti-knocking value of octane number of the following is:
 - (I) CH₄
- (II) C_2H_6
- (III) C_3H_8
- (IV) C₄H₁₀

- (A) I > II > III > IV
- (B) I > III > IV > II
- (C) IV > III > II > I
- (D) None

- **49.** The correct order of melting points:
 - (A) Decane > Nonane > Octane > Heptane
- (B) Heptane > Octane > Nonane > Decane
- (C) Heptane > Nonane > Octane > Decane
- (D) Decane > Octane > Nonane > Heptane

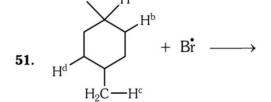
50. Ethane can be prepared by :

(A)
$$C_2H_5Cl \xrightarrow{Zn} CH_3COOH \rightarrow$$

(B)
$$CH_3CHO \xrightarrow{Zn-Hg} Conc.HCI$$

(C)
$$CH_3$$
- $C \equiv CH + C_2H_5MgI \xrightarrow{\text{ether}}$

(D) All of these



Br will abstract which of the hydrogen most readily:

(A) a

(B) b

(C) c

(D) d

52. $\xrightarrow{\text{CH}_3}$ $\xrightarrow{\text{Br}_2 / \text{hv}}$ Monobromo derivatives

The number of possible monobromo products is (excluding stereoisomers)

(A) 4

(B) 5

- (C)8
- (D) 10

53. $CH_4 + Cl_2 \xrightarrow{hv} CH_3CI + HCI$

To obtain high yields of CH₃Cl, the ratio of CH₄ to Cl₂ must be:

- (A) high
- (B) low
- (C) equal
- (D) can't be predicted

- **54.** An alkane (mol. wt. = 86) on bromination gives only two monobromo derivatives (excluding stereoisomer). The alkane is :
 - (A) 2-Methylpentane
- (B) 2,2-Dimethylbutane
- (C) 2,3-Dimethylbutane
- (D) 2,2-Dimethylpropane

$$H_3C-H_2C$$
 $C=C$
 D
 H_2/Pt

Product of the above reaction will be:

- (A) Racemic mix
- (C) Meso

- (B) Diastereomers
- (D) Constitutional isomers

56.

$$H_2C$$
— CO_2K
 \downarrow electrolysis (X)
 H_2C — CO_2K Major

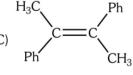
Product (X) of the reaction is:

- (A) Ethane
- (B) Ethene
- (C) Cyclobutane
- (D) Butene

57.

$$\begin{array}{c|c} Ph & H \\ \hline Ph & Br \end{array} & \begin{array}{c} alc. \ KOH \\ \hline E_2 \ reaction \end{array} \\ \hline & CH_3 \end{array} \\ \hline \end{array} & \begin{array}{c} Alc. \ KOH \\ \hline \end{array} & \begin{array}{c} Alc. \ KOH \\ \hline \end{array} \\ \hline \end{array} & \begin{array}{c} Alc. \ KOH \\ \hline \end{array} \\ \hline$$

$$_{(B)}$$
 $_{H_3C}$ $_{C}$ $=$ $_{CH}$



58. Identify major product of the reaction:

$$\begin{array}{c} CH_3 \\ I \\ N-CH_2 - CH_2 - CH_3 & \xrightarrow{H_2O_2} \end{array} \rightarrow$$

- (A) Ethane
- (C) Propene
- (D) None
- **59**. The decreasing order of reactivity with electrophile of the following compound is:
 - (I) $Ph_2C = CH_2$
- (II) Ph-CH=CH-Ph
- (III) CH_3 -CH= CH_2

- (A) I > II > III
- (B) III > II > I
- (C) I = II > III
- (D) II > I > III
- **60**. Which of the following shows least reactivity towards bromination:
 - (A) CH_3 -CH=CH- CH_3 (B) CH_2 = CH_2
- (C) CH≡CH
- (D) CH_3 –CH= CH_2