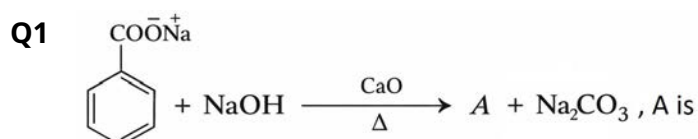


ULTIMATE KCET CRASH COURSE 2026

CHEMISTRY

Hydrocarbon

DPP: 01



- (A) C₆H₅ - Na (B) C₅H₅ - Na
(C) C₆H₆ (D) C₆H₅ - ONa



- (A) H₂ (B) CH₄
(C) All of these (D) CH₃ - CH₃

Q3 n-Propylbromide on treatment with ethanolic KOH is

- (A) Propyne (B) Propene
(C) Propane (D) Propanal

Q4 Which of the following deactivates the benzene ring towards electrophilic substitution and is $\frac{0}{p}$ directing?

- (A) -CHO
(B) -CH₃
(C) -Cl[⊖]
(D) All of these

Q5 Ques. In the following sequence of reactions, the alkene is converted to compound B

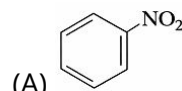


The compound B ___ is?

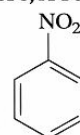
- (A) CH₃COCH₃ (B) CH₃CH₂COCH₃
(C) CH₃CHO (D) CH₃CH₂CHO



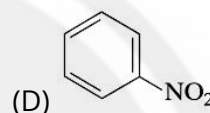
Here, A refers to



Here, A refers to



- (C) All of these



Q7 A molecule of benzene has:

- (A) 6σ and 3π bonds
(B) 12σ and 3π bonds
(C) 6σ and 9π bonds
(D) 9σ and 3π bonds

Q8 Saturated hydrocarbons contain

- (A) double bonds (B) ionic bonds
(C) triple bonds (D) single bonds

Q9 Which of the following is the predominant product in the reaction of HOBr with propene?

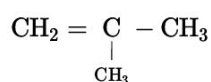
- (A) 2-Bromo-2-propanol
(B) 2-Bromo-1-propanol
(C) 3-Bromo-1-propanol
(D) 1-Bromo-2-propanol

Q10 Which of the following is correct regarding the stability of carbocation?

- (A) 3° > 2° > 1°
(B) 2° > 1° > 3°
(C) 3° < 2° < 1°
(D) 2° > 3° > 1°



Q11 The IUPAC name of

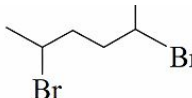


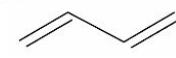
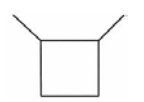
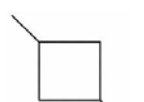
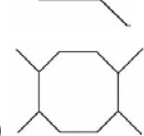
is

- (A) 2-methylbutene
 (B) 2-methylbut-2-ene
 (C) 1-methylpropene
 (D) 2-methylprop-1-ene

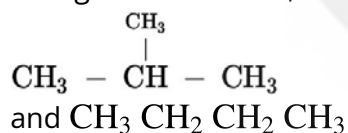
Q12 In the Wurtz reaction method of preparation of alkanes, the stoichiometric coefficient of Sodium is ____.

- (A) 2 (B) 3
 (C) 1 (D) 5

Q13  $\xrightarrow{\text{Na/ether}}$ P, P is

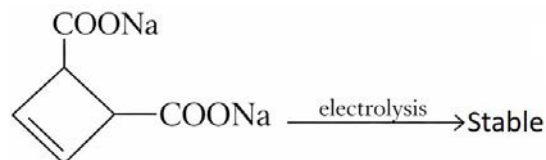
- (A) 
 (B) 
 (C) 
 (D) 

Q14 The given structures,




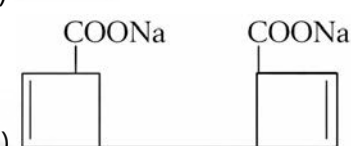


- (A) chain isomers
 (B) Position isomers
 (C) Functional isomers
 (D) conformational isomer

Q15



product of this reaction is isolated as

- (A) 
 (B) 
 (C) 
 (D) 

Q16 When two hydrogen atoms in benzene are replaced by two similar or different monovalent atoms or groups, how many different position isomers are possible?

- (A) 6 (B) 5
 (C) 2 (D) 3

Q17 Addition of cold conc. H_2SO_4 with alkenes is an example of

- (A) electrophilic addition reaction
 (B) nucleophilic substitution reaction
 (C) electrophilic substitution reaction
 (D) nucleophilic addition reaction

Q18 Which of the following has higher dipole moment; cis-2-butene and trans-2-butene?

- (A) Both have same dipole moment
 (B) trans-but-2-ene
 (C) cis-but-2-ene
 (D) Both have different dipole moment

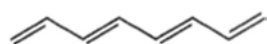




Identify product 'X' is :

- (A)
$$\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{Ph} - \text{C} - \text{C} - \text{CH}_3 \\ | \quad | \\ \text{OH} \quad \text{H} \end{array}$$
- (B)
$$\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{Ph} - \text{C} - \text{C} - \text{CH}_3 \\ | \quad | \\ \text{H} \quad \text{OH} \end{array}$$
- (C) $\text{Ph} - \text{CH}_2 - \text{OH}$
- (D) $\text{Ph} - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{OH}$

Q20 Number of σ -bonds and π -bonds present in



is

- (A) σ -Bond = 15 π -Bond = 3
- (B) σ -Bond = 18 π -Bond = 4
- (C) σ -Bond = 17 π -Bond = 4
- (D) σ -Bond = 14 π -Bond = 3
- Q21** Presence of a nitro group in a benzene ring:
- (A) deactivates the ring towards nucleophilic substitution.
- (B) activates the ring towards electrophilic substitution.
- (C) deactivates the ring towards electrophilic substitution.
- (D) renders the ring basic.
- Q22** How many monochloro derivative are possible for n-pentane?
- (A) 3 (B) 5
- (C) 6 (D) 4

Q23 Which of the following will not show geometrical isomerism?

- (A)
$$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \diagdown \quad / \\ \text{C} = \text{C} \\ / \quad \diagdown \\ \text{CH}_3 \quad \text{C}_2\text{H}_5 \end{array}$$
- (B)
$$\begin{array}{c} \text{F} \quad \text{H} \\ \diagdown \quad / \\ \text{C} = \text{C} \\ / \quad \diagdown \\ \text{Cl} \quad \text{D} \end{array}$$
- (C)
$$\begin{array}{c} \text{F} \quad \text{F} \\ \diagdown \quad / \\ \text{C} = \text{C} \\ / \quad \diagdown \\ \text{Cl} \quad \text{Cl} \end{array}$$
- (D)
$$\begin{array}{c} \text{H}_3\text{C} \quad \text{C}_2\text{H}_5 \\ \diagdown \quad / \\ \text{C} = \text{C} \\ / \quad \diagdown \\ \text{H}_5\text{C}_2 \quad \text{CH}_3 \end{array}$$

Q24 The product(s) via-oxymmercuration ($\text{HgSO}_4 + \text{H}_2\text{SO}_4$) of 1-butyne would be

- (A) $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$
- (B) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CHO}$
- (C) $\text{CH}_3 - \text{CH}_2 - \text{CHO} + \text{HCHO}$
- (D) $\text{CH}_3 - \text{CH}_2 - \text{COOH} + \text{HCOOH}$

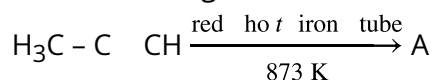
Q25 Dehydration of which one of the following alcohols produces an alkene exhibiting cis-trans isomerism?

- (A) Isopropyl alcohol
- (B) Tertiary butyl alcohol
- (C) nbutyl alcohol
- (D) 3-pentanol

Q26 Tropolone is an example of

- (A) benzenoid aromatic compound
- (B) non-benzenoid aromatic compound
- (C) alicyclic compound
- (D) acyclic compound

Q27 In the following reaction,



the number of sigma (σ) bonds present in the product A, is _____.

- (A) 18 (B) 21
- (C) 9 (D) 24



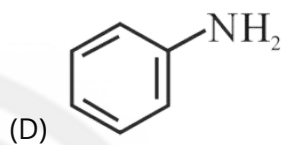
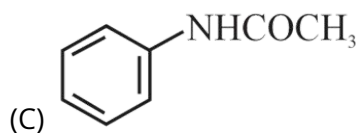
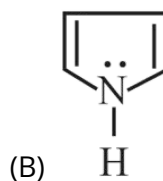
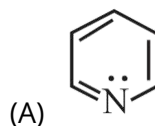
Q28 The alkene that will give the same product with HBr in the absence as well as in the presence of peroxide is

- (A) 2-butene (B) 1-butene
(C) propene (D) 1-hexene

Q29 Tert - butyl group is named as:

- (A) 1, 2, 3-trimethylmethyl
(B) 1, 1-dimethylethyl
(C) 1, 2-dimethylethyl
(D) 2, 2-dimethylethyl

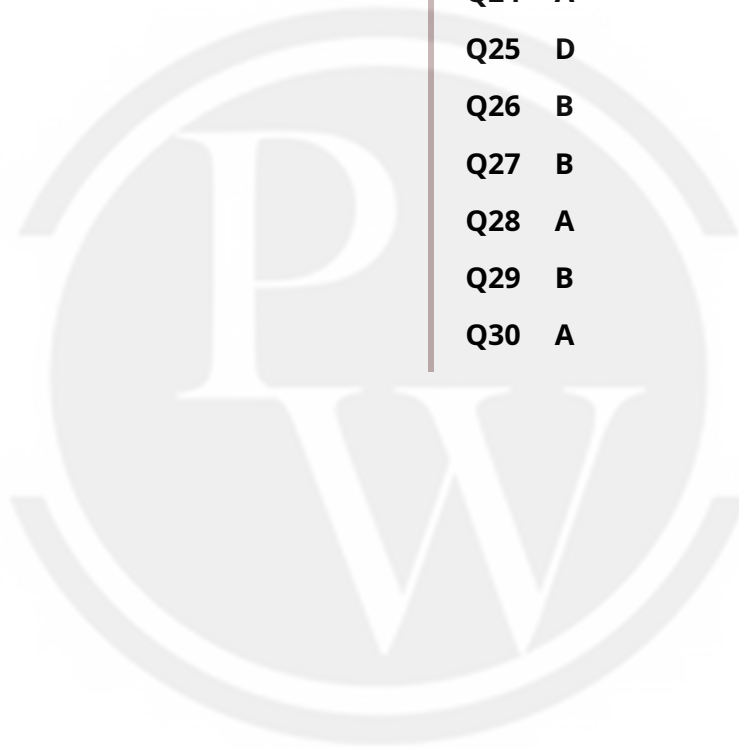
Q30 Which one of the following has the most nucleophilic nitrogen?



Answer Key

Q1 C
Q2 C
Q3 B
Q4 C
Q5 C
Q6 C
Q7 B
Q8 D
Q9 D
Q10 A
Q11 D
Q12 A
Q13 B
Q14 A
Q15 A

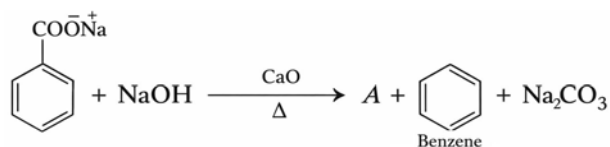
Q16 D
Q17 A
Q18 C
Q19 A
Q20 C
Q21 C
Q22 A
Q23 A
Q24 A
Q25 D
Q26 B
Q27 B
Q28 A
Q29 B
Q30 A



Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

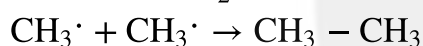
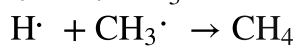
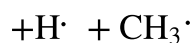


Video Solution:



Q2 Text Solution:

The given reaction represents Kolbe's electrolysis

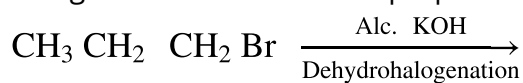


Video Solution:



Q3 Text Solution:

Elimination reaction takes place, a molecule of HBr gets eliminated to form propene.



Video Solution:



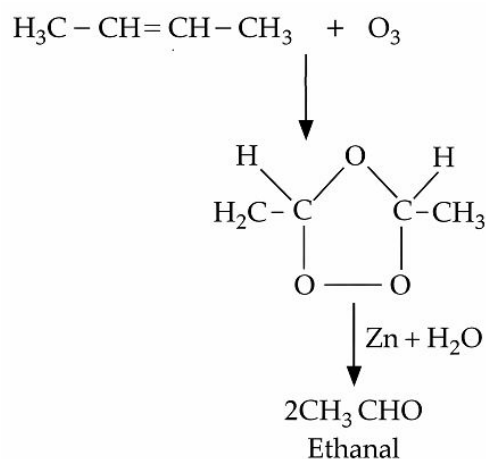
Q4 Text Solution:

$-\text{Cl}^\ominus$ deactivates the benzene ring towards electrophilic substitution reaction due to its -I effect

Video Solution:



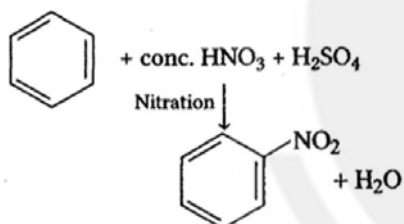
Q5 Text Solution:



Video Solution:



Q6 Text Solution:

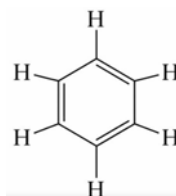


All of are same molecule, i.e, nitrobenzene.

Video Solution:



Q7 Text Solution:



Video Solution:



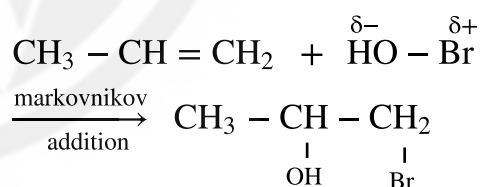
Q8 Text Solution:

Saturated hydrocarbons are the compounds in which there is a single bond between the carbon atoms. They are also called alkanes and have the general formula $\text{C}_n\text{H}_{2n+2}$

Video Solution:



Q9 Text Solution:



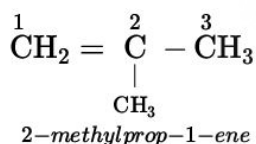
Video Solution:



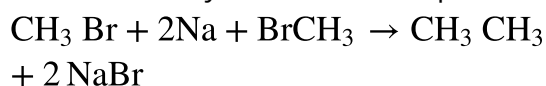
Q10 Text Solution:

This order of stability of carbocations is based on dispersal of positive charge by the +I-effect and hyperconjugation effect of the alkyl groups.

Greater the number of alkyl groups on the carbon atom carrying the positive charge, greater would be the dispersal of positive charge, and hence more stable will be the carbocation.

Video Solution:**Q11 Text Solution:****Video Solution:****Q12 Text Solution:**

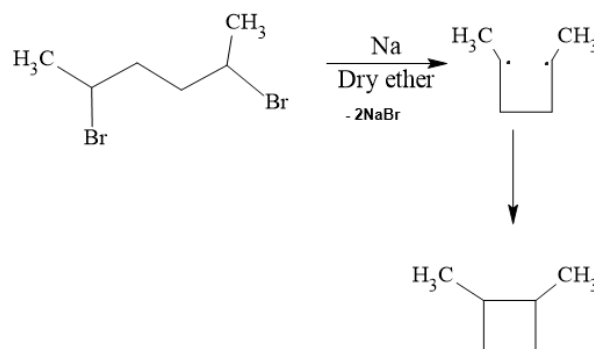
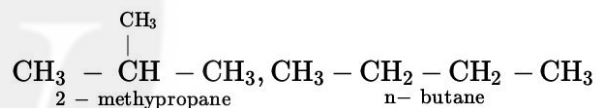
Wurtz reaction is used for the preparation of alkanes from alkyl halides in the presence of sodium and dry ether. For example:



Thus two atoms of Na are used.

Video Solution:**Q13 Text Solution:**

Intramolecular wurtz reaction leads to cyclisation of the hydrocarbon alkane

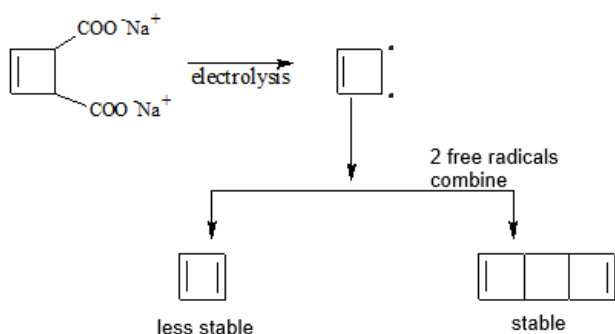
**Video Solution:****Q14 Text Solution:**

Molecular formula Same

Chain of C-atom Different

Video Solution:

Q15 Text Solution:



Video Solution:



Q16 Text Solution:

The three isomers will be ortho (i.e. 1,2- or 1,4-disubstituted), meta (i.e. 1,3- or 1,5-disubstituted) and para (1,4-disubstituted)

Video Solution:



Q17 Text Solution:

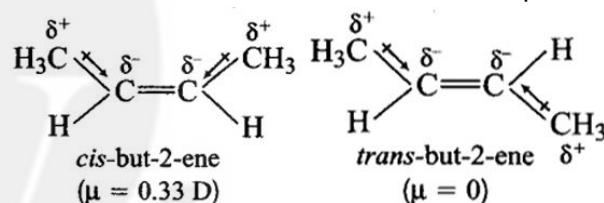
The electrophilic addition reaction between ethene and sulfuric acid. Alkenes react with concentrated sulfuric acid in the cold to produce alkyl hydrogensulphates. For example, ethene reacts to give ethyl hydrogensulphate.

Video Solution:



Q18 Text Solution:

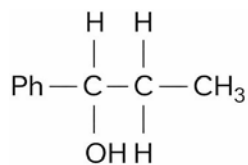
Cis form of alkene is found to be more polar than the trans form e.g. dipole moment of cis-but-2-ene is 0.33 Debye, whereas, dipole moment of the trans form is almost zero or it can be said that trans but-2-ene is non-polar.



Video Solution:



Q19 Text Solution:

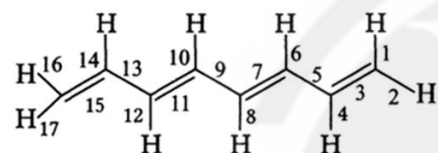


Video Solution:

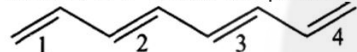


Q20 Text Solution:

A single bond is always a σ -bond and a double bond contains one σ and one π -bond.



Hence, 17 σ -bonds are present.



Hence, 4 π -bonds are present.

Video Solution:



Q21 Text Solution:

Nitro is an electron-withdrawing group, it pulls the electron density from the ring towards itself thereby decreasing the electron density in the ring and deactivating the ring towards attack by the electrophile.

Video Solution:



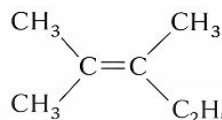
Q22 Text Solution:

n-Pentane has 3 types of hydrogens and can form 3 monochloro derivatives.

Video Solution:



Q23 Text Solution:

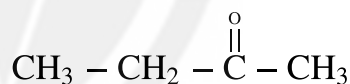


This is because geometrical isomerism is not possible if three groups are same.

Video Solution:

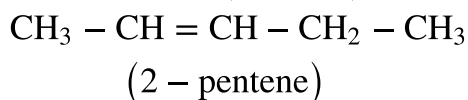
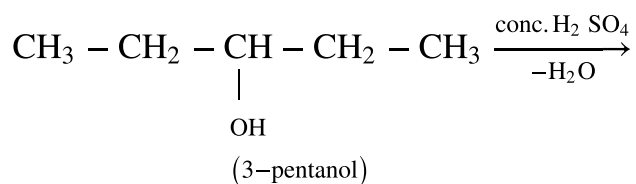


Q24 Text Solution:



Video Solution:

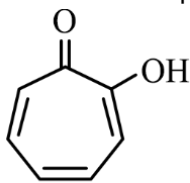


Q25 Text Solution:

2-pentene shows cis-trans isomerism

Video Solution:**Q26 Text Solution:**

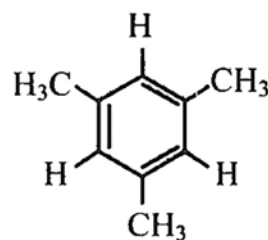
Tropolone is classified as non-benzenoid aromatic compound



Tropolone

Video Solution:**Q27 Text Solution:**

The product is mesitylene having following structure.



It contains 21 sigma (σ) bonds.

Video Solution:**Q28 Text Solution:**

The addition of HBr to symmetrical alkenes is not affected by the presence or absence of peroxide.

Video Solution:**Q29 Text Solution:**

1,1-dimethylethyl

Video Solution:

Q30 Text Solution:

In option (b) lone pair of electrons on N is a part of aromaticity and in option (c) NH- group is adjacent to electron withdrawing group and in option (d) lone pair is a part of resonance. So, pyridine (a) is most nucleophilic.

Video Solution:[Android App](#)[iOS App](#)[PW Website](#)