

JEE MAIN HYDROCARBONS — CHEMICAL PROPERTIES OF ALKYNES — PYQS

Max. Marks: 32

Questions: 8

Section A (MCQ) — 7 questions

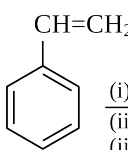
- Q.1** An optically active alkyl bromide C_4H_9Br , reacts with ethanolic KOH to form major compound [A] which reacts with bromine to give compound [B]. Compound [B] reacts with ethanolic KOH and sodamide to give compound [C]. One molecule of water adds to compound [C] on warming with mercuric sulphate and dilute sulphuric acid at 333 K to form compound [D]. The functional group in compound D will be confirmed by :

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) Haloform test (2) Lucas test
(3) Silver mirror test (4) Benedict test

Scan or tap for the full solution



- Q.2**  (X) $\xrightarrow[\text{(iv) } H_2, Na/NH_3(l)]{\text{(i) } Br_2 / CHCl_3, \text{ (ii) } NaNH_2 \text{ excess, (iii) } CH_3I}$ Major Product (Y)

Compound (X) is subjected to the sequence of reactions as shown above. Molar mass of the major product (Y) formed is _____ $g\ mol^{-1}$.

(Given molar mass in $g\ mol^{-1}$ C : 12, H : 1, O : 16)

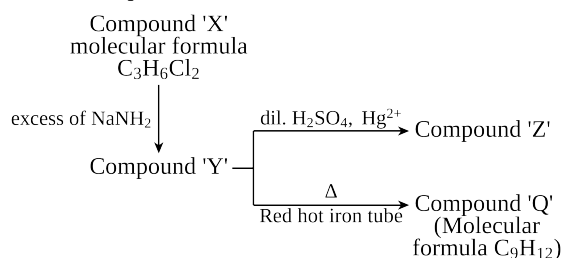
[JEE Main 2026 (Online) 4th April Evening Shift]

- (1) 90 (2) 118 (3) 160 (4) 125

Scan or tap for the full solution



- Q.3** Given below are two statements for the following reaction sequence.



Statement-I: Compound 'Z' will give yellow precipitate with NaOI.

Statement-II: Compound 'Q' has two different types of 'H' atoms (aromatic : aliphatic) in the ratio 1:3.

In the light of the above statements, choose the **correct** answer from the options given below :

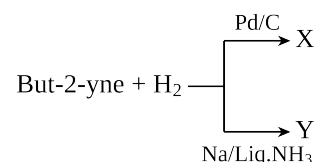
[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) Statement-I is true but Statement-II is false
(2) Both Statement-I and Statement-II are true
(3) Statement-I is false but Statement-II is true
(4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



- Q.4** But-2-yne and hydrogen (one mole each) are separately treated with (i) Pd/C and (ii) Na/ liq. NH_3 to give the products X and Y respectively.



Identify the incorrect statements.

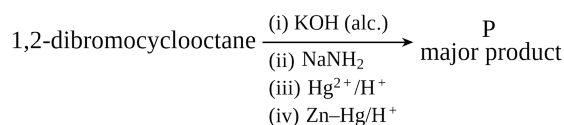
- A. X and Y are stereoisomers.
B. Dipole moment of X is zero.
C. Boiling point of X is higher than Y.
D. X and Y react with $O_3/Zn + H_2O$ to give different products.

Choose the correct answer from the options given below :

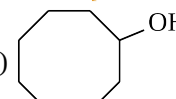
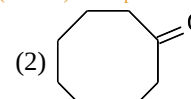
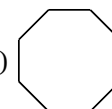
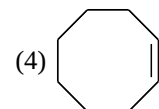
[JEE Main 2026 (Online) 23rd January Morning Shift]

- (1) B and D Only (2) A and C Only
(3) A and B Only (4) B and C Only

Scan or tap for the full solution

**Q.5**

'P' is [JEE Main 2025 (Online) 8th April Evening Shift]

- (1)  (2) 
(3)  (4) 

Scan or tap for the full solution



Q.6 An optically active alkyl halide C_4H_9Br [A] reacts with hot KOH dissolved in ethanol and forms alkene [B] as major product which reacts with bromine to give dibromide [C]. The compound [C] is converted into a gas [D] upon reacting with alcoholic $NaNH_2$. During hydration 18 gram of water is added to 1 mole of gas [D] on warming with mercuric sulphate and dilute acid at 333 K to form compound [E]. The IUPAC name of compound [E] is :

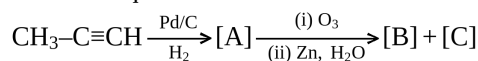
[JEE Main 2025 (Online) 2nd April Morning Shift]

- (1) Butan-2-ol (2) But-2-yne
(3) Butan-2-one (4) Butan-1-al

Scan or tap for the full solution

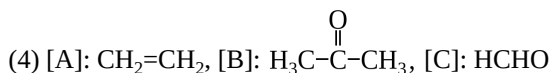


Q.7 Identify product [A], [B] and [C] in the following reaction sequence.



[JEE Main 2025 (Online) 28th January Evening Shift]

- (1) [A]: $CH_3-CH=CH_2$, [B]: CH_3CHO , [C]: CH_3CH_2OH
(2) [A]: $CH_3-CH=CH_2$, [B]: CH_3CHO , [C]: $HCHO$
(3) [A]: $CH_3CH_2CH_3$, [B]: CH_3CHO , [C]: $HCHO$

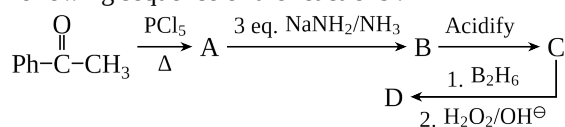


Scan or tap for the full solution



Section B (Numerical) — 1 question

Q.8 Identify the structure of the final product (D) in the following sequence of the reactions :



Total number of sp^2 hybridised carbon atoms in product D is _____.

[JEE Main 2025 (Online) 7th April Evening Shift]

Scan or tap for the full solution



ANSWER KEY

Section A (MCQ) — 7 questions

Ques.	1	2	3	4	5	6	7				
Ans.	1	2	2	1	3	3	2				

Section B (Numerical) — 1 question

Ques.	8										
Ans.	7										