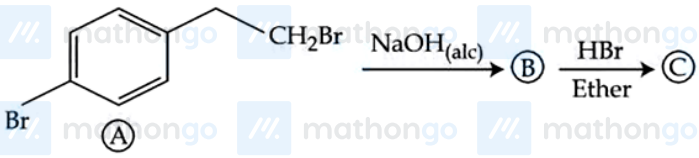
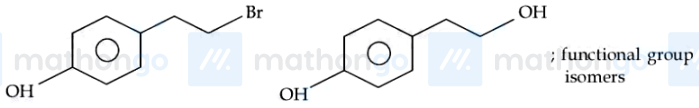
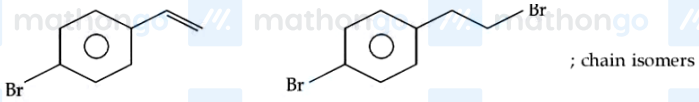
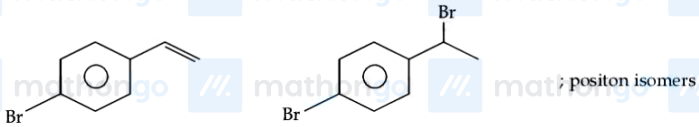
Q1 - 2024 (04 Apr Shift 1)

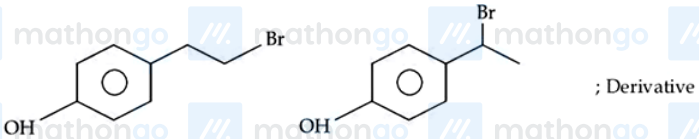


Identify (B) and (C) and how are (A) and (C) related ?

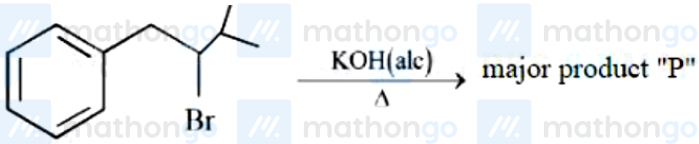
(1)  ; functional group isomers

(2)  ; chain isomers

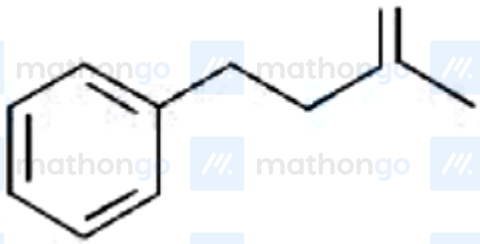
(3)  ; positon isomers

(4)  ; Derivative

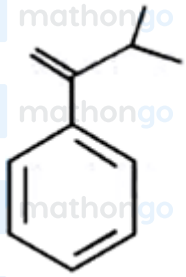
Q2 - 2024 (04 Apr Shift 2)



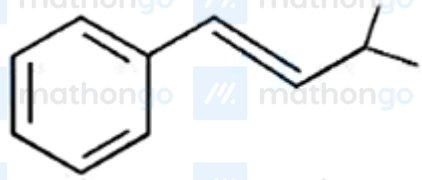
Product P is

(1) 

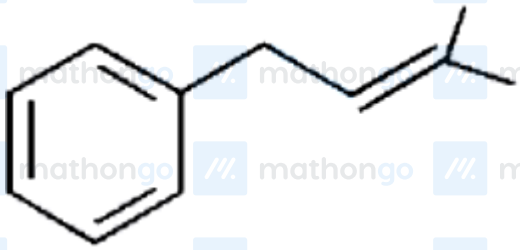
(2)



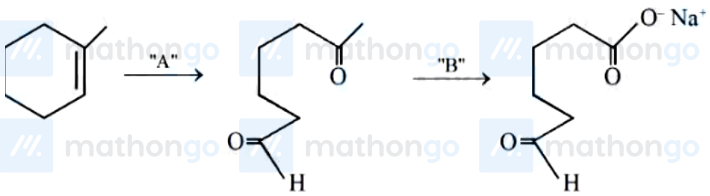
(3)



(4)



Q3 - 2024 (04 Apr Shift 2)



In the above chemical reaction sequence " A " and " B " respectively are

(1) H_2O, H^+ and $KMnO_4$

(2) $O_3, Zn/H_2O$ and $NaOH_{(alc)}$ /I_2

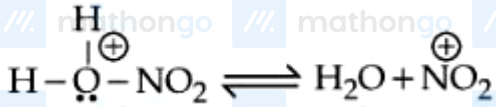
(3) $O_3, Zn/H_2O$ and $KMnO_4$

(4) H_2O, H^+ and $NaOH_{(alc)}/I_2$

Q4 - 2024 (05 Apr Shift 1)

Given below are two statements:

Statement I : Nitration of benzene involves the following step -



Statement II : Use of Lewis base promotes the electrophilic substitution of benzene. In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Statement I is correct but Statement II is incorrect

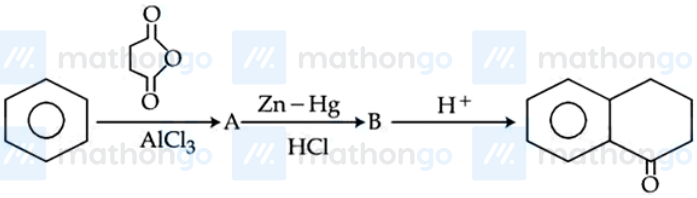
(2) Statement I is incorrect but Statement II is correct

(3) Both Statement I and Statement II are correct

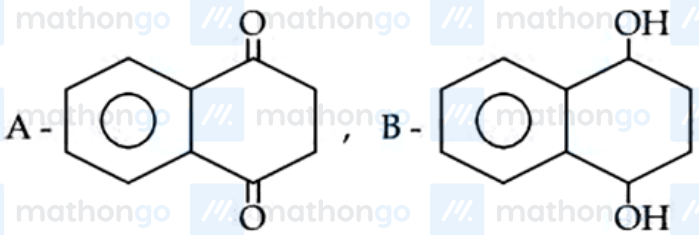
(4) Both Statement I and Statement II are incorrect

Q5 - 2024 (05 Apr Shift 2)

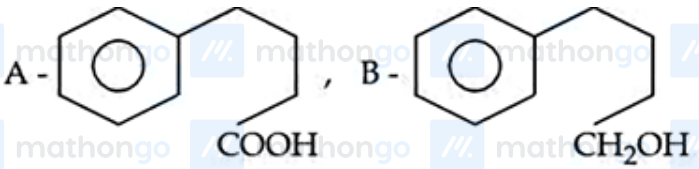
Identify A and B in the given chemical reaction sequence :



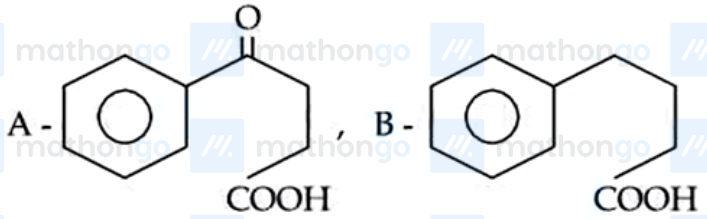
(1)

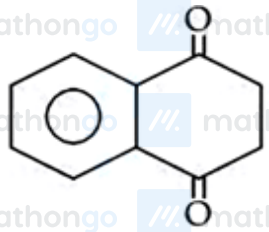
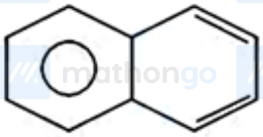


(2)



(3)

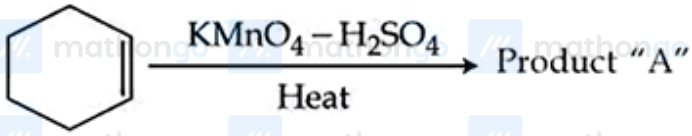


A -  , B - 

(4)

Q6 - 2024 (05 Apr Shift 2)

Consider the given chemical reaction :



Product " A " is :

(1) picric acid

(2) acetic acid

(3) adipic acid

(4) oxalic acid

Q7 - 2024 (06 Apr Shift 1)

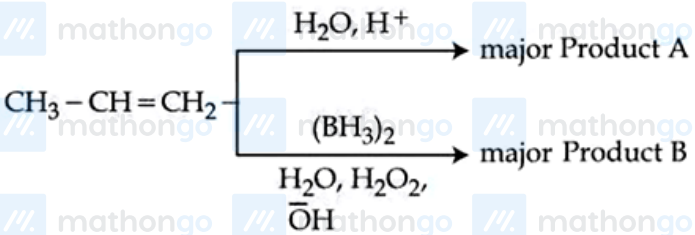
The major product of the following reaction is P.

$$CH_3C = C - CH_3 \xrightarrow[\text{(ii) dil. } KMnO_4,\ 273\ K]{\text{(i) Na/ ing } NH_3\ /\!/} P$$

Number of oxygen atoms present in product ' P ' is _____ (nearest integer)

Q8 - 2024 (09 Apr Shift 1)

Identify the product A and product B in the following set of reactions.



(1) A - $CH_3CH_2CH_2-OH$ B - $CH_3CH(OH)-CH_3$

(2) A - $CH_3CH_2CH_3$ B – $CH_3CH_2CH_3$

(3) A – $CH_3CH_2CH_2-OH$ B – $CH_3CH_2CH_2-OH$

(4) A - $CH_3-CH(OH)-CH_3$ B - $CH_3CH_2CH_2-OH$

Q9 - 2024 (09 Apr Shift 2)

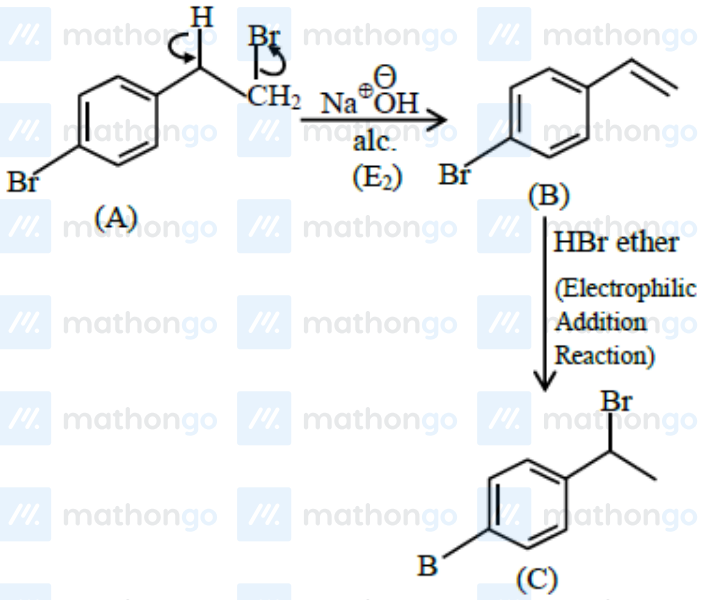
Number of compounds from the following which cannot undergo Friedel-Crafts reactions is: _____.

toluene, nitrobenzene, xylene, cumene, aniline, chlorobenzene, *m*-nitroaniline, *m*-dinitrobenzene

Answer Key

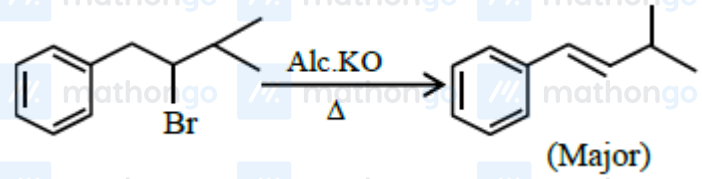
Q1 (3)	**Q2** (3)	**Q3** (2)	**Q4** (1)
Q5 (3)	**Q6** (3)	**Q7** (2)	**Q8** (4)
Q9 (4)			

Q1

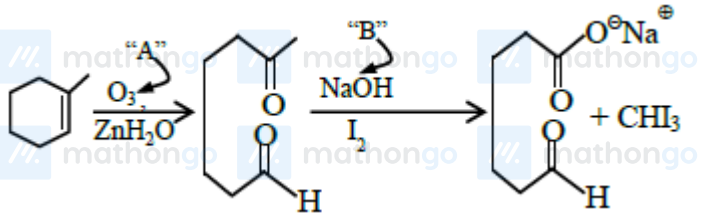


A and C are position isomer.

Q2

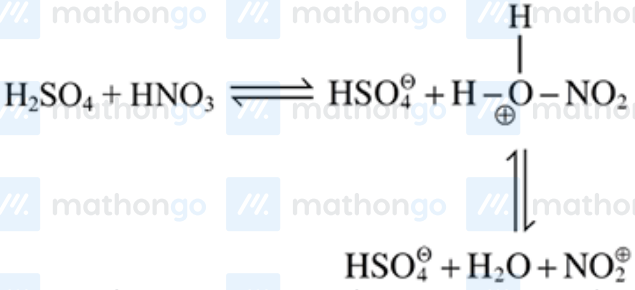


Q3



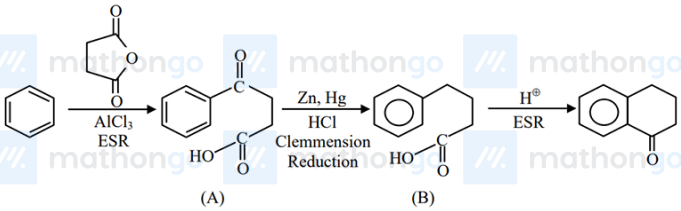
Q4

In nitration of benzene concentrated H_2SO_4 and HNO_3 is used as reagent which generates electrophile N_2 in following steps:

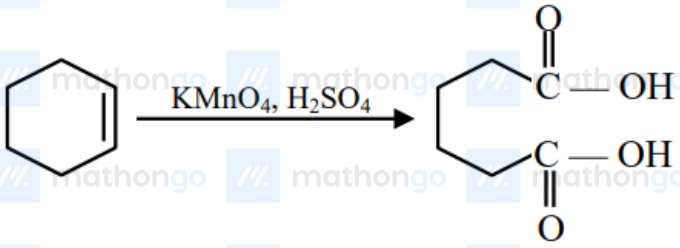


Lewis acids can promote the formation of electrophiles not Lewis base

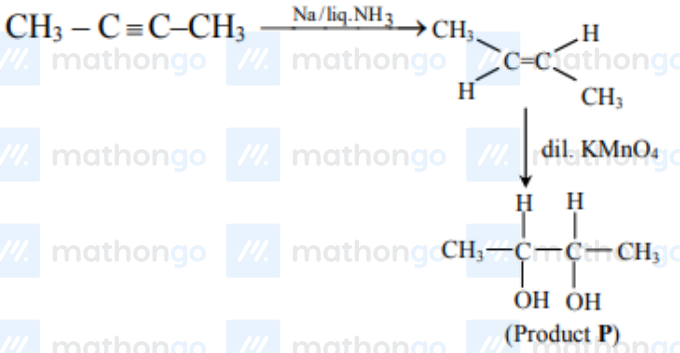
Q5



Q6



Q7



Q8

(1) Hydration Reaction :

$$CH_3-CH=CH_2+H^+ \longrightarrow \underset{\text{(More stable)}}{CH_3-\overset{+}{C}H-CH_3}$$

$$CH_3-\overset{+}{C}H-CH_3+H_2O \longrightarrow \underset{\text{(A)}}{(CH_3-\underset{OH}{\underset{|}{C}}H-CH_3)}+H^+$$

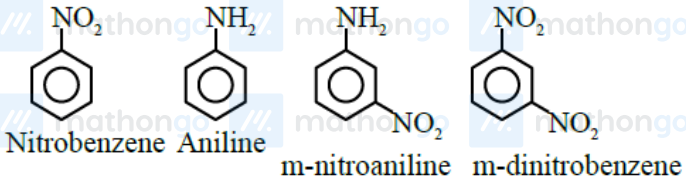
(2) Hydroboration Oxidation Reaction :

$$3CH_3-CH=CH_2+B_2H_6 \xrightarrow{THF} 2(CH_3CH_2CH_2)_3B$$

$$(CH_3CH_2CH_2)_3B+3H_2O_2 \xrightarrow{OH^-} \underset{\text{(B)}}{3CH_3CH_2CH_2OH}+H_3BO_3$$

Q9

Compounds which can not undergo Friedel Crafts reaction are



Nitrobenzene Aniline m-nitroaniline m-dinitrobenzene