

Aromatic Compounds

Aromatic Compounds

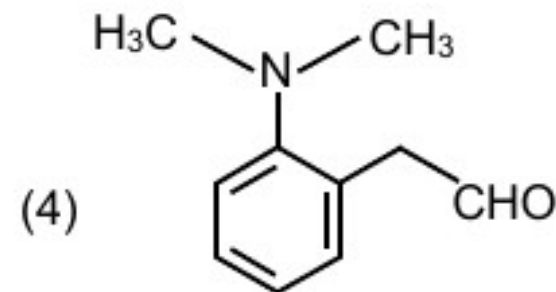
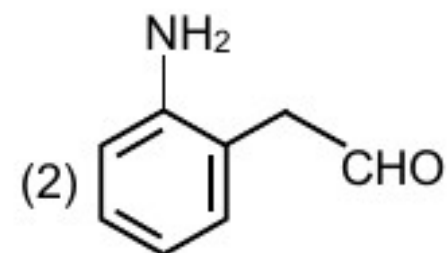
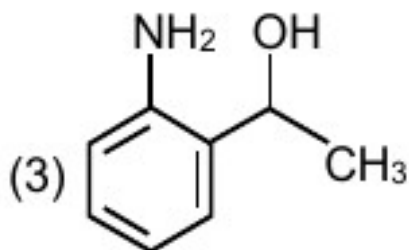
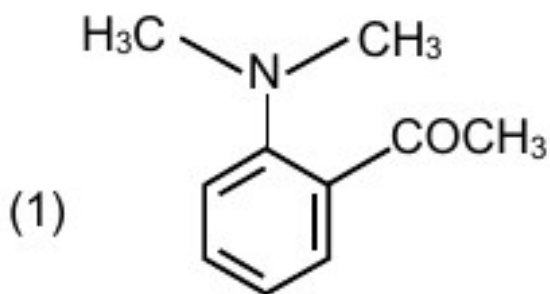
By

Sinha Sir, Kota

The tests performed on compound X and their inferences are :

	Test	Inference
(a)	2, 4-DNP test	Coloured
(b)	Iodoform test	yellow precipitate
(c)	Azo-dye test	No dye formation

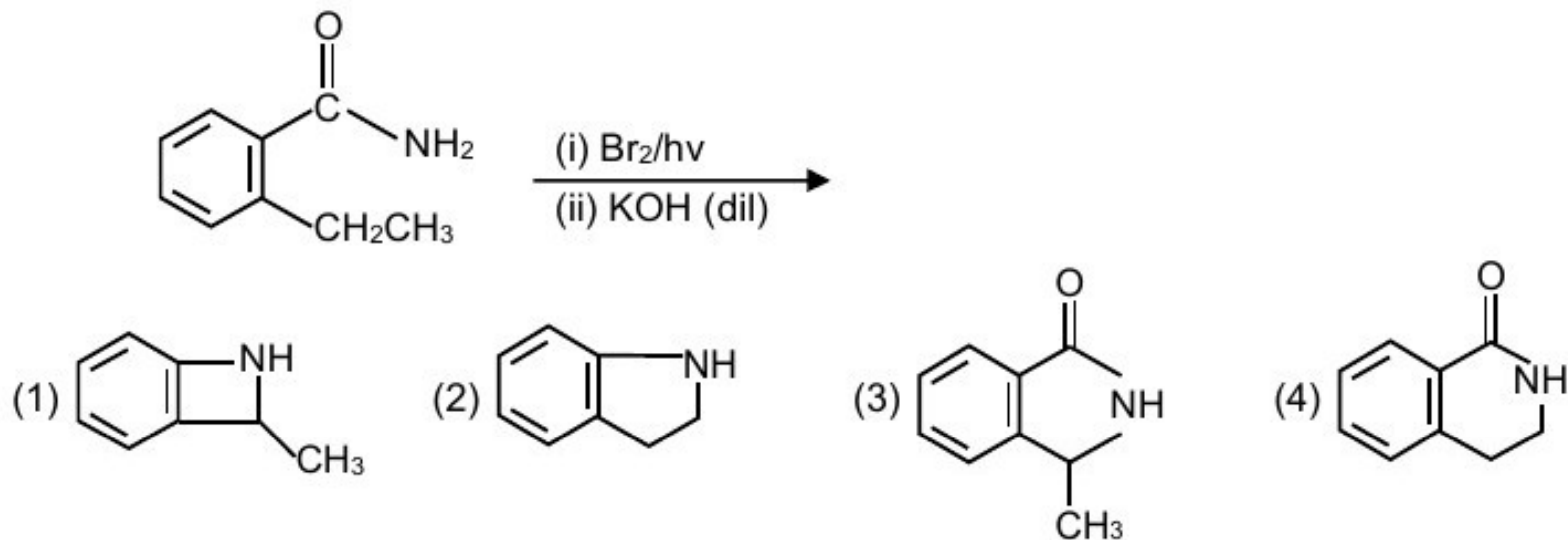
Compound 'X' is :



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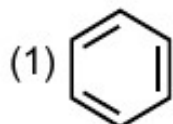
The major product of the following reaction is :



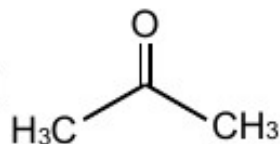
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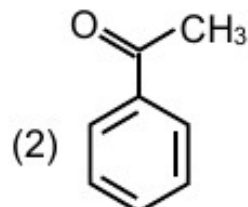
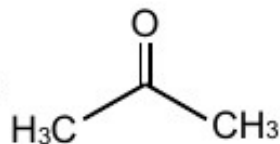
The products formed in the reaction of cumene with O_2 followed by treatment with dil. HCl are :



and



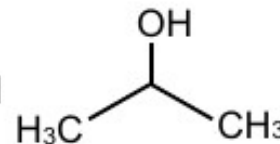
and



and CH_3-OH



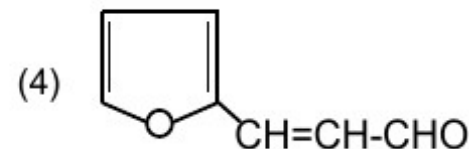
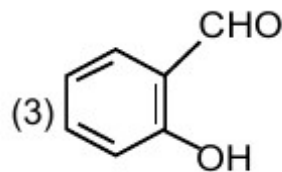
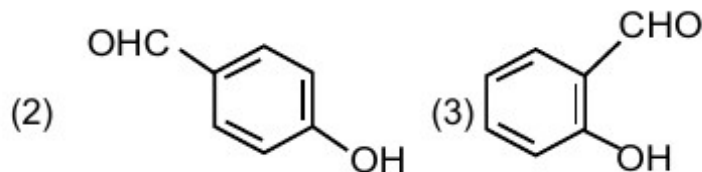
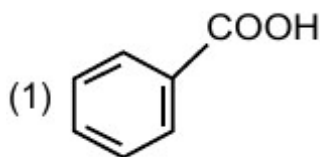
and



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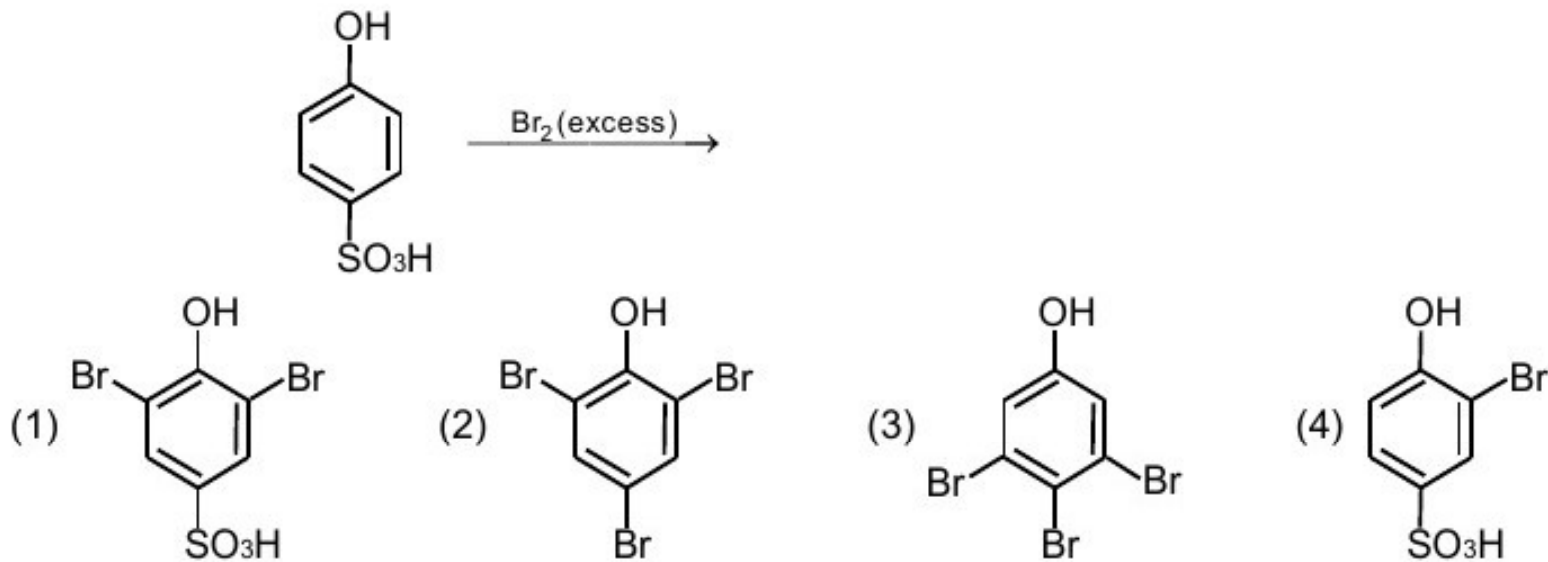
An aromatic compound 'A' having molecular formula $C_7H_6O_2$ on treating with aqueous ammonia and heating forms compounds 'B'. The compound B on reaction with molecular bromine and potassium hydroxide provides compound 'C' having molecular formula C_6H_7N . The structure of 'A' is:



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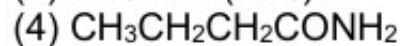
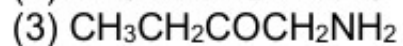
The major product of the following reaction is:



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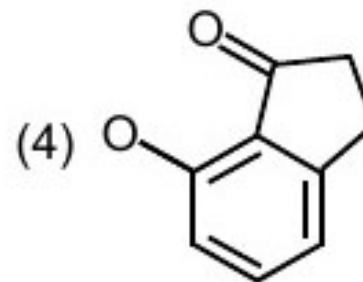
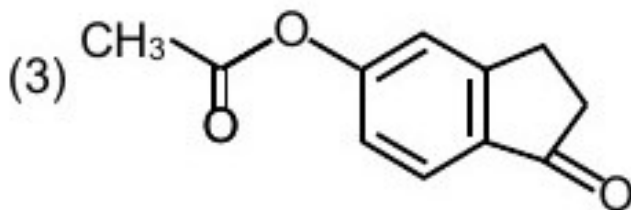
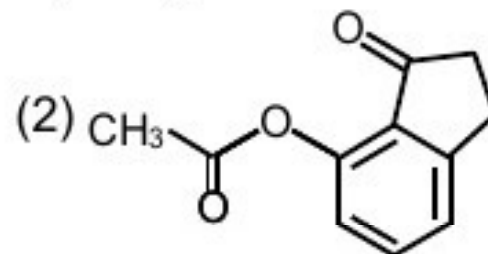
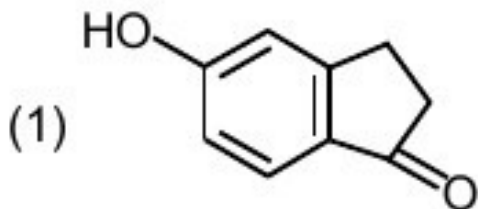
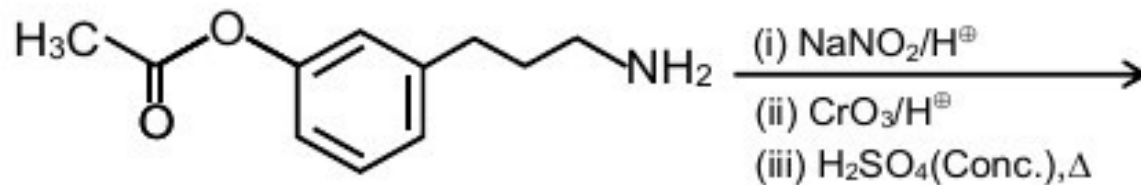
A compound 'X' on treatment with Br_2/NaOH , provided $\text{C}_3\text{H}_9\text{N}$, which gives positive carbylamine test. Compound 'X' is :



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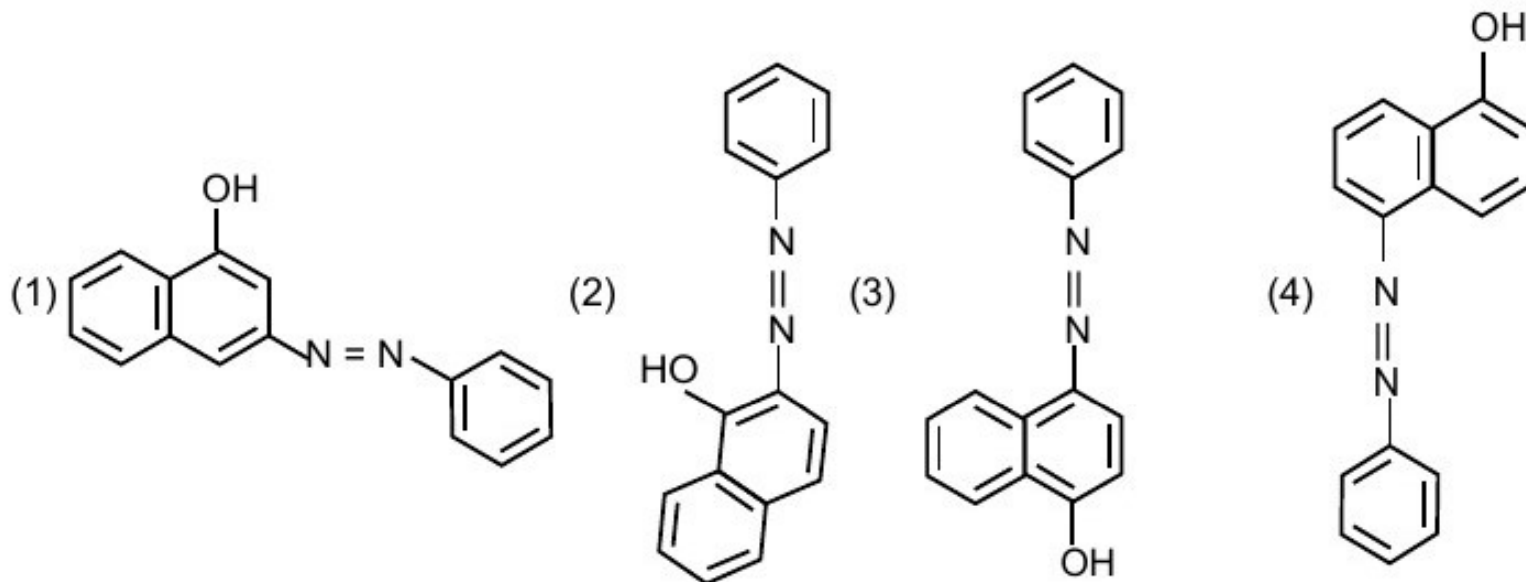
The major product of the following reaction is:



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Coupling of benzene diazonium chloride with 1-naphthol in alkaline medium will give :

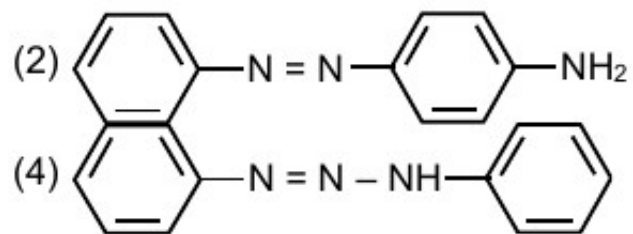
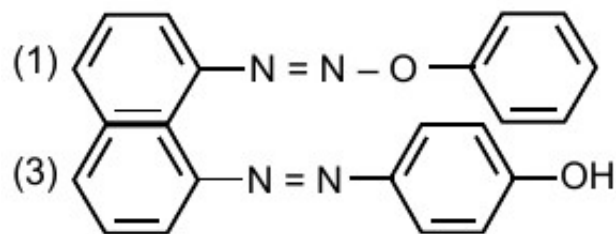


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Aniline dissolved in dilute HCl is reacted with sodium nitrite at 0°C. This solution was added dropwise to a solution containing an equimolar mixture of aniline and phenol in dil. HCl. The structure of the major product is:



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Ethylamine ($\text{C}_2\text{H}_5\text{NH}_2$) can be obtained from N-ethylphthalimide on treatment with :

(1) CaH_2

(2) H_2O

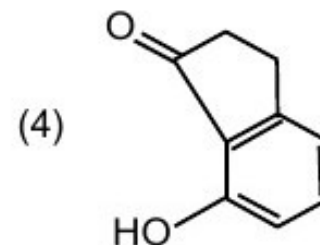
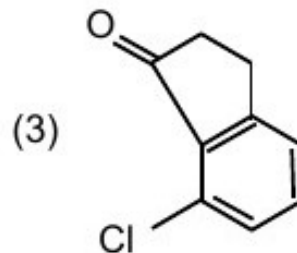
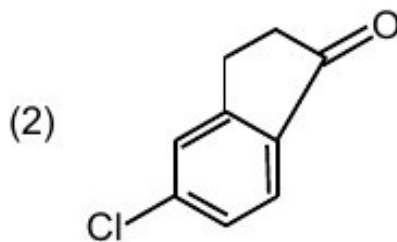
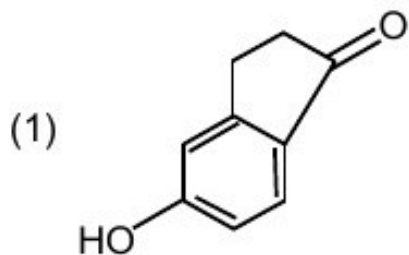
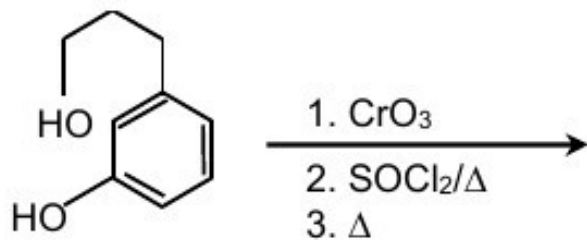
(3) NH_2NH_2

(4) NaBH_4

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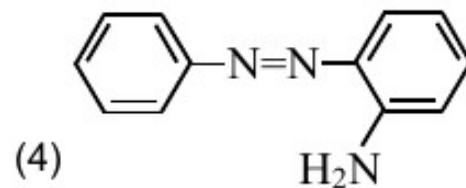
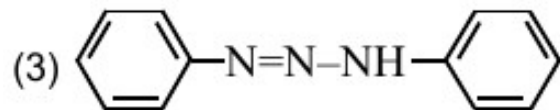
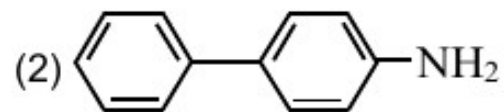
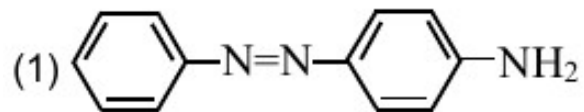
The major product of the following reaction is :



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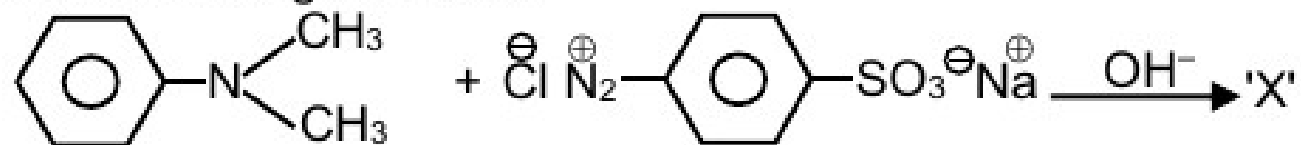
Benzene diazonium chloride on reaction with aniline in the presence of dilute hydrochloric acid gives :



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Consider the following reaction :



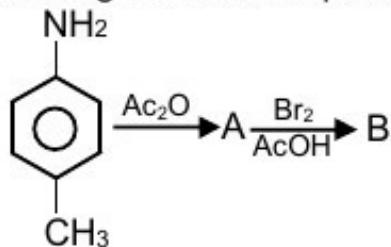
The product 'X' is used :

- (1) in laboratory test for phenols
- (2) in protein estimation as an alternative to ninhydrin
- (3) in acid base titration as an indicator
- (4) as food grade colourant

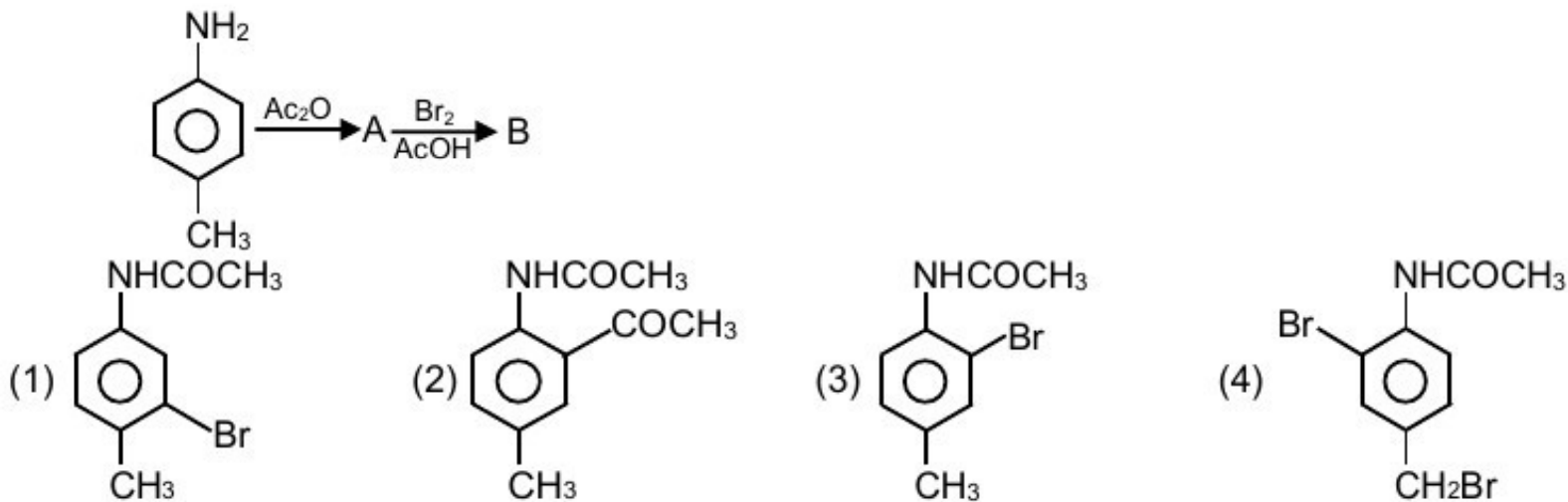
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In the following reaction sequence,



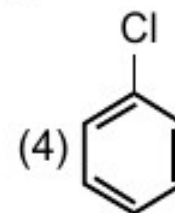
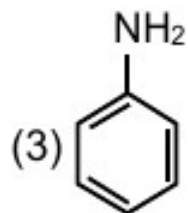
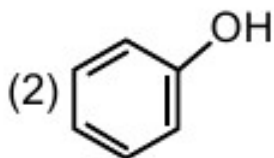
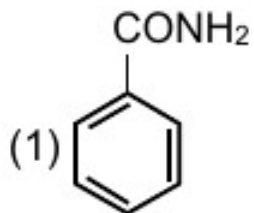
the major product B is :



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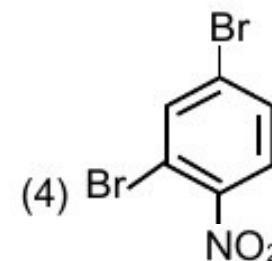
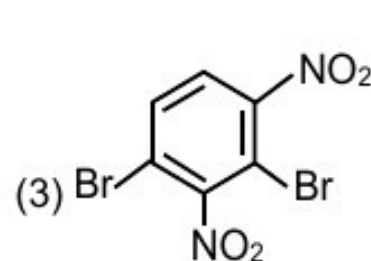
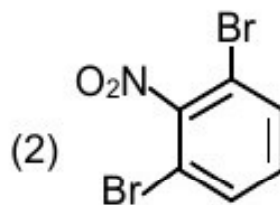
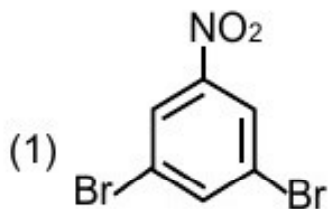
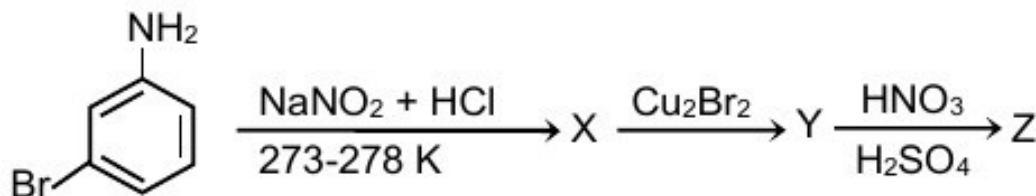
Which of these will produce the highest yield in Friedel Craft reaction ?



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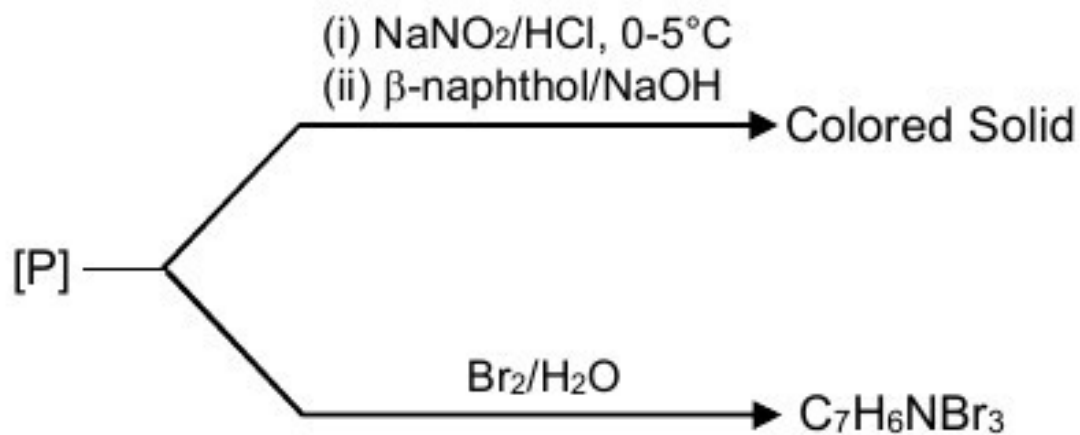
The major product Z obtained in the following reaction scheme is



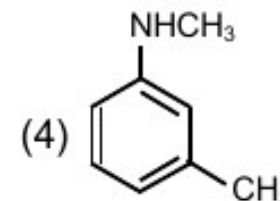
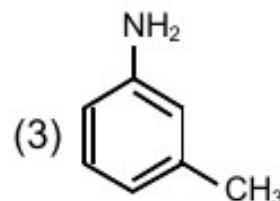
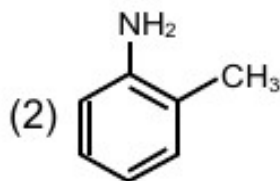
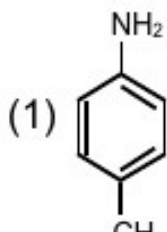
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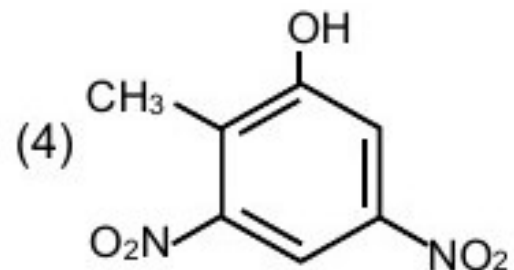
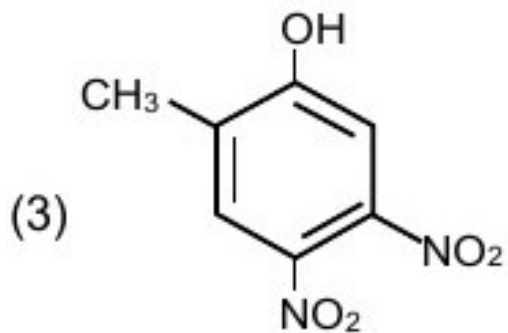
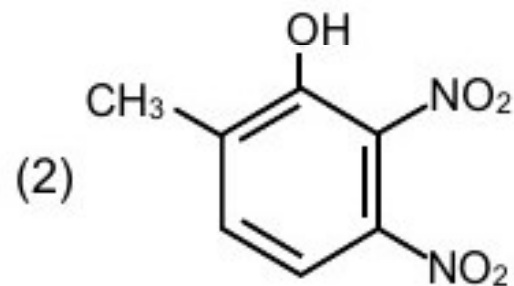
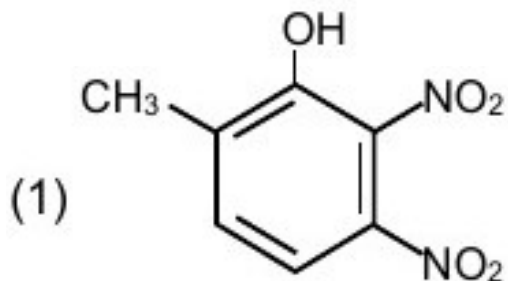
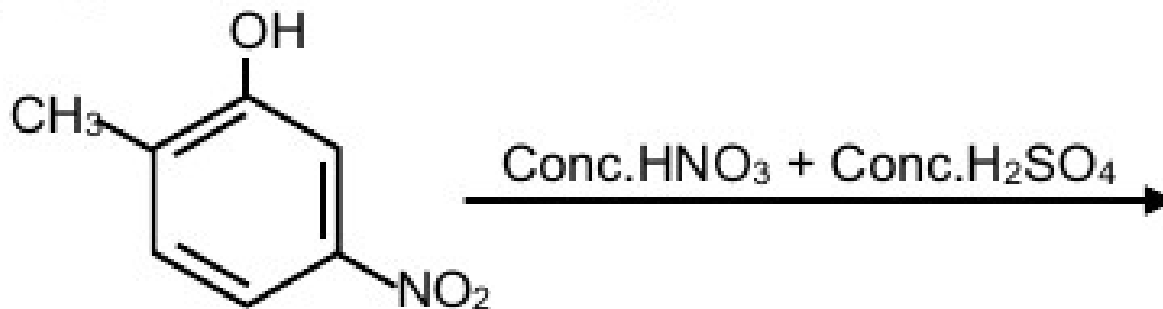
Consider the following reactions,



The compound [P] is:



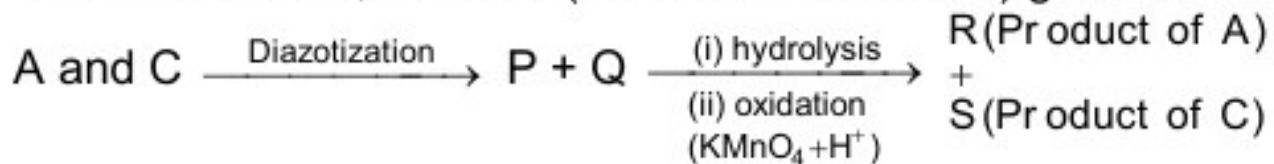
The major product of the following reaction is:



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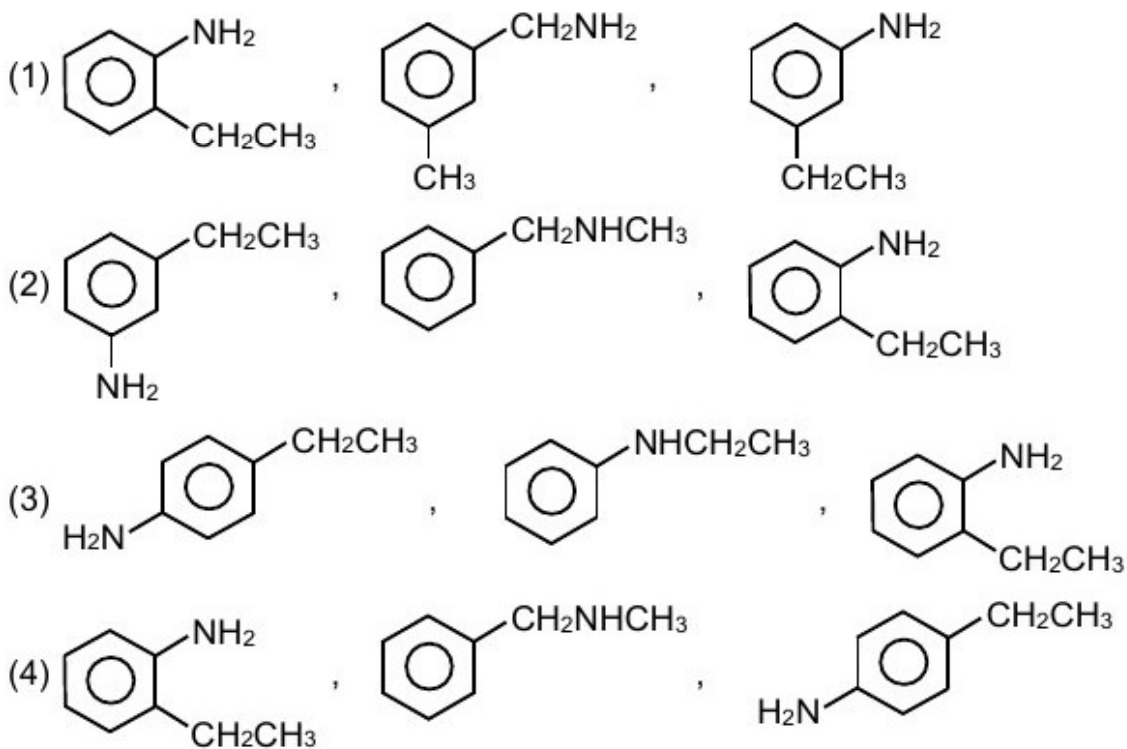
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Three isomers A, B and C (mol. formula $C_8H_{11}N$) give the following results:



R has lower boiling point than S

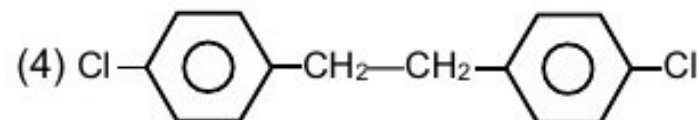
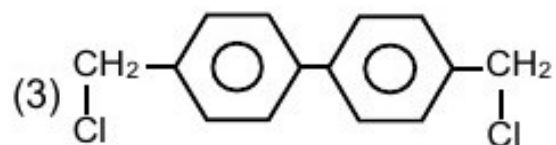
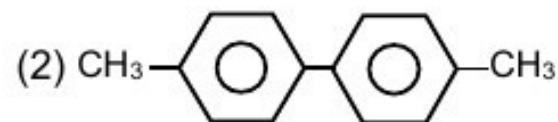
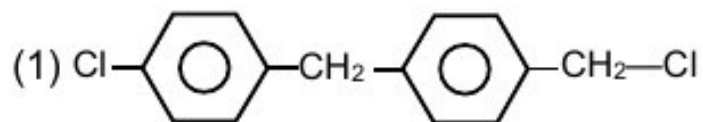
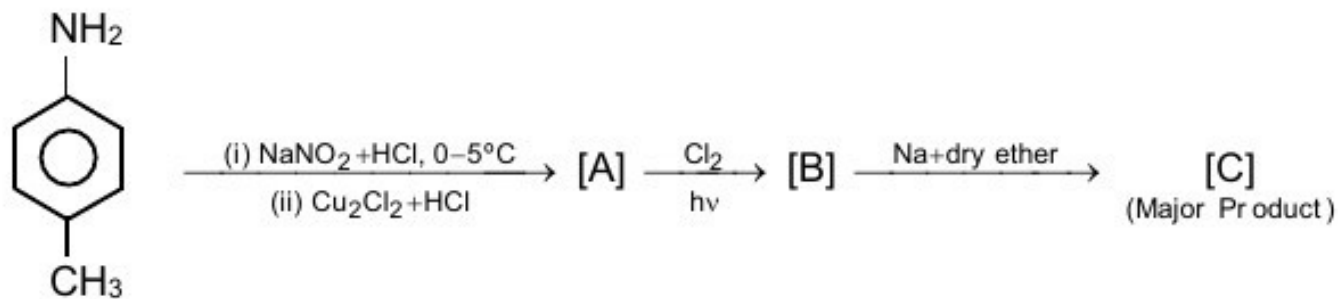
B $\xrightarrow{C_6H_5SO_2Cl}$ alkali-insoluble product A, B and C, respectively are:



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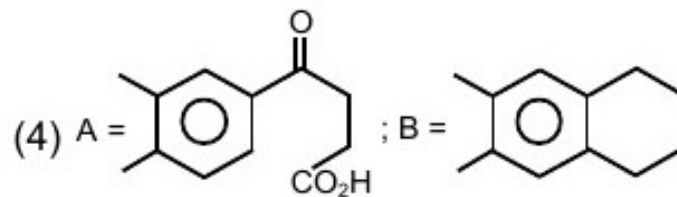
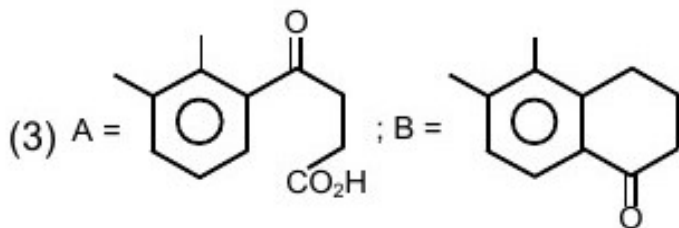
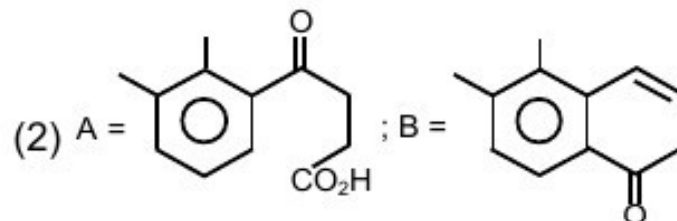
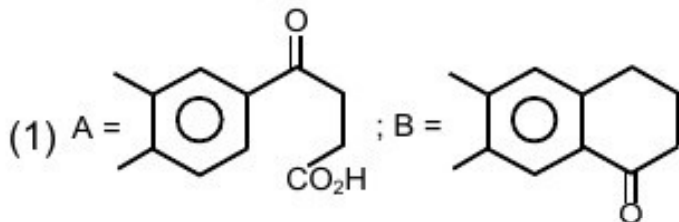
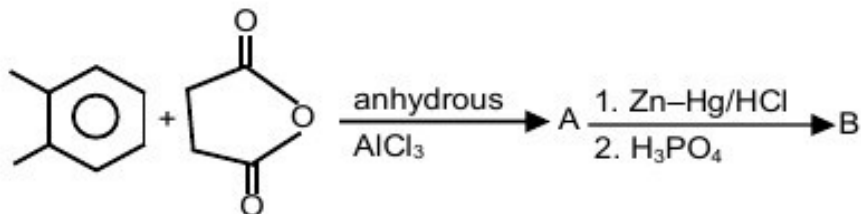
In the following reaction sequence, [C] is :



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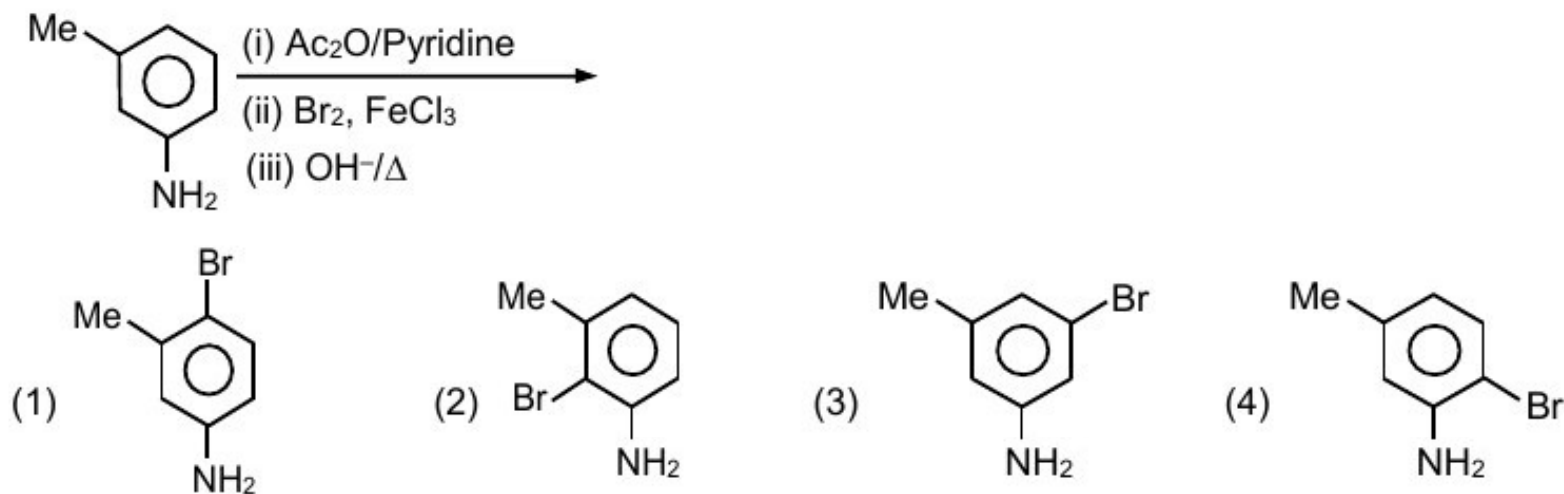
In the following reaction sequence the major product A and B are :



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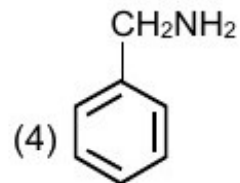
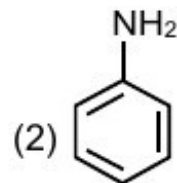
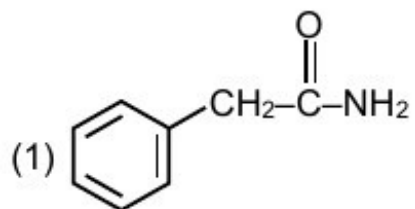
The final major product of the following reaction is :



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Which of the following compounds can be prepared in good yield by Gabriel phthalimide synthesis?



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The correct match between Item – I (starting material) and Item-II (reagent) for the preparation of benzaldehyde is:

	Item-I		Item-II
(I)	Benzene	(P)	HCl and SnCl ₂ , H ₃ O ⁺
(II)	Benzonitrile	(Q)	H ₂ , Pd-BaSO ₄ , S and quinoline
(III)	Benzoyl Chloride	(R)	Co, HCl and AlCl ₃

(1) (I)-(R), (II)-(Q) and (III)-(P)
(2) (I)-(Q), (II)-(R) and (III)-(P)
(3) (I)-(P), (II)-(Q) and (III)-(R)
(4) (I)-(R), (II)-(P) and (III)-(Q)

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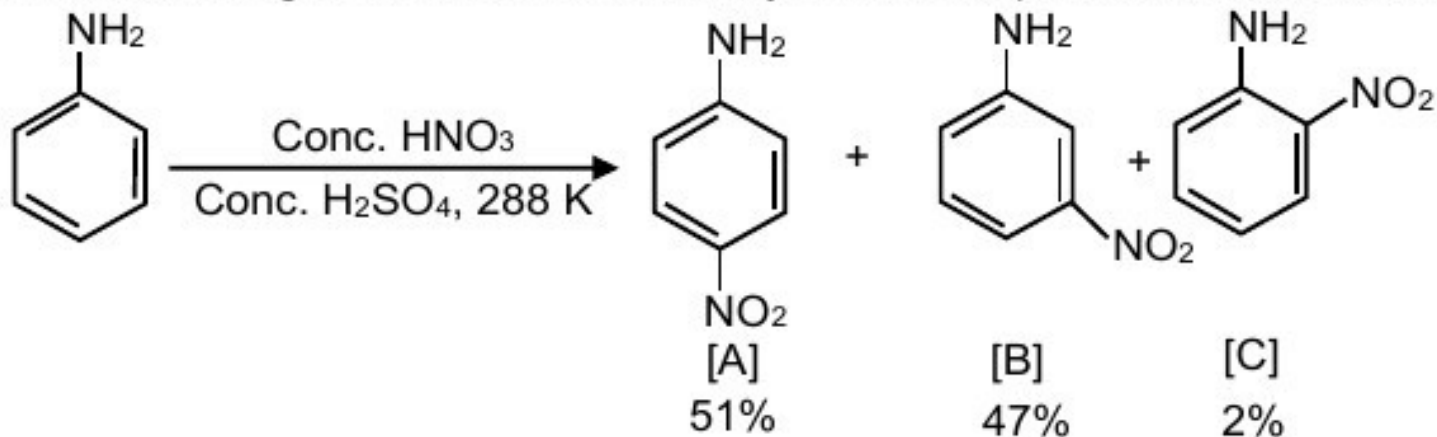
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A solution of phenol in chloroform when treated with aqueous NaOH gives compound P as a major product. The mass percentage of carbon in P is _____. (to the nearest integer)
(Atomic mass : C = 12; H = 1; O = 16)

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In the following reaction the reason why meta-nitro product also formed is:

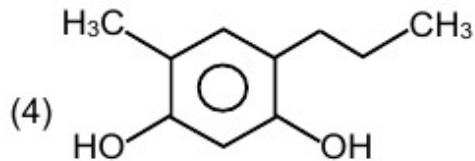
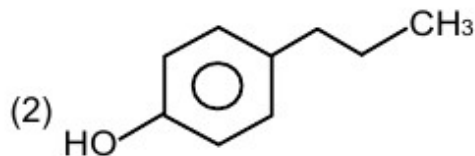
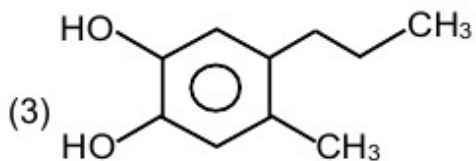
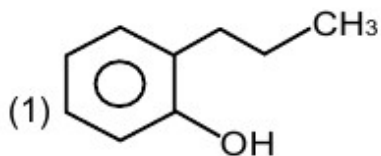


- (1) $-\text{NH}_2$ group is highly meta-directive
- (2) low temperature
- (3) $-\text{NO}_2$ substitution always takes place at meta-position
- (4) Formation of anilinium ion

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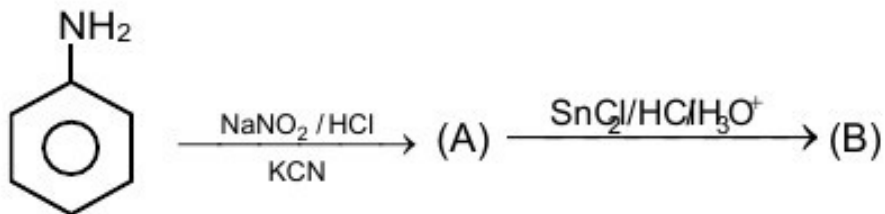
Which of the following compound gives pink colour on reaction with phthalic anhydride in conc. H_2SO_4 followed by treatment with NaOH ?

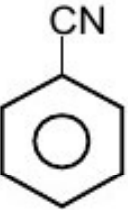
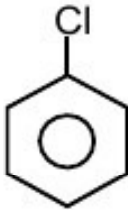
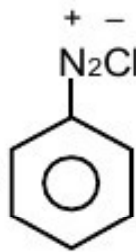
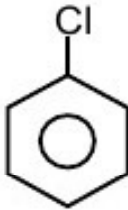
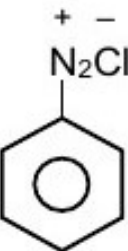
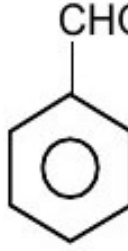
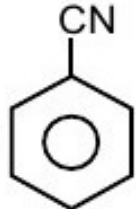
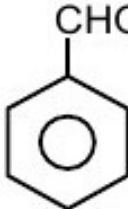


Aromatic Compounds

By
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'A' and 'B' in the following reactions are :

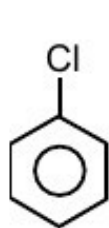


- (1) (A):  (B): 
- (2) (A):  (B): 
- (3) (A):  (B): 
- (4) (A):  (B): 

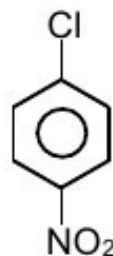
Aromatic Compounds

By
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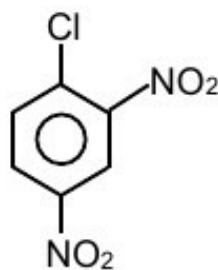
The correct order of the following compounds showing increasing tendency towards nucleophilic substitution reaction is :



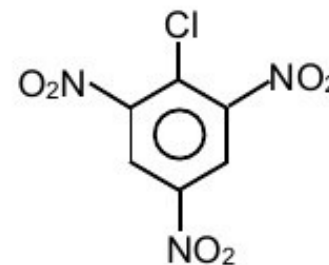
I



II



III



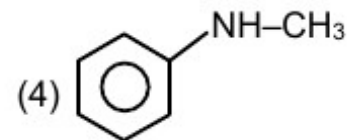
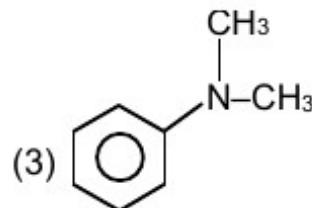
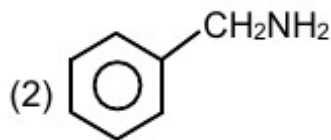
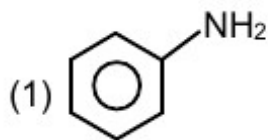
IV

- (1) (i) < (ii) < (iii) < (iv) (2) (iv) < (iii) < (ii) < (i) (3) (iv) < (i) < (ii) < (iii) (4) (iv) < (i) < (iii) < (ii)

Aromatic Compounds

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The diazonium salt of which of the following compounds will form a coloured dye on reaction with β -Naphthol in NaOH ?



Aromatic Compounds

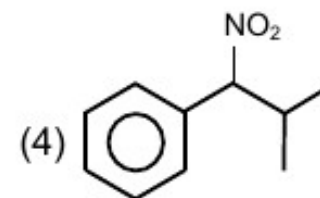
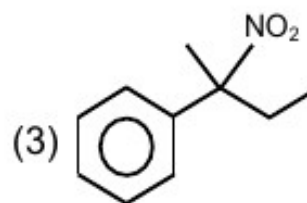
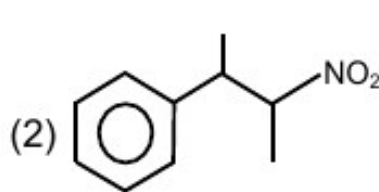
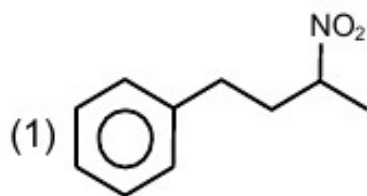
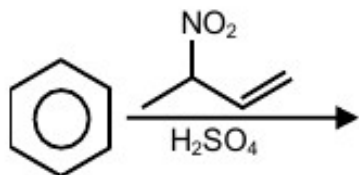
By
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1.86 g of aniline completely reacts to form acetanilide. 10% of the product is lost during purification. Amount of acetanilide obtained after purification (in g) is $\times 10^{-2}$.

Aromatic Compounds

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The major product of the following reaction is :



Aromatic Compounds

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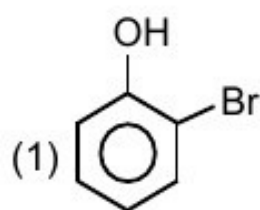
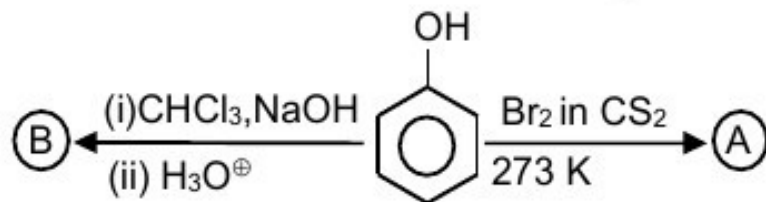
The correct sequence of reagents used in the preparation of 4-bromo-2-nitroethylbenzene :

- (1) $\text{HNO}_3/\text{H}_2\text{SO}_4$, $\text{Br}_2/\text{AlCl}_3$, $\text{CH}_2\text{COCl}/\text{AlCl}_3$, $\text{Zn-Hg}/\text{HCl}$
- (2) $\text{Br}_2/\text{AlBr}_3$, $\text{CH}_3\text{COCl}/\text{AlCl}_3$, $\text{HNO}_3/\text{H}_2\text{SO}_4$, Zn/HCl
- (3) $\text{CH}_3\text{COCl}/\text{AlCl}_3$, $\text{Zn-Hg}/\text{HCl}$, $\text{Br}_2/\text{AlBr}_3$, $\text{HNO}_3/\text{H}_2\text{SO}_4$
- (4) $\text{CH}_3\text{COCl}/\text{AlCl}_3$, $\text{Br}_2/\text{AlBr}_3$, $\text{HNO}_3/\text{H}_2\text{SO}_4$, Zn/HCl

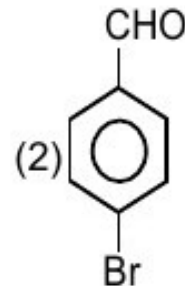
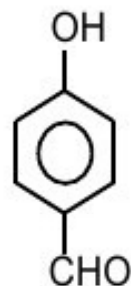
Aromatic Compounds

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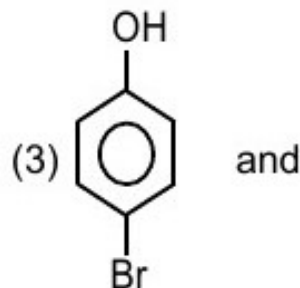
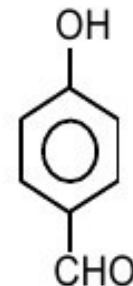
Identify the major products A and B respectively in the following reaction of phenol:



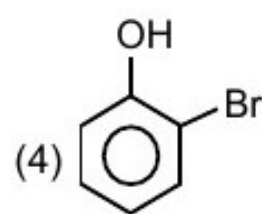
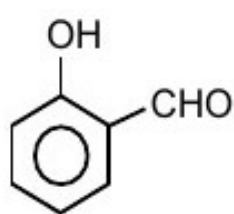
and



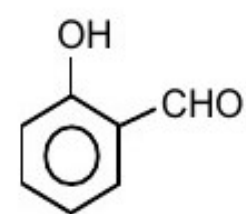
and



and



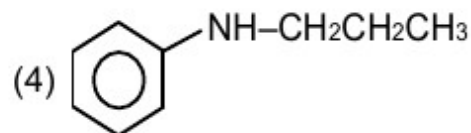
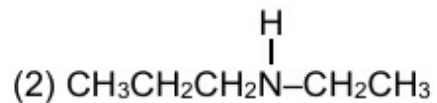
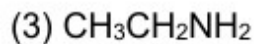
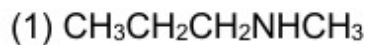
and



Aromatic Compounds

By
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An amine on reaction with benzenesulphonyl chloride produces a compound insoluble in alkaline solution. This amine can be prepared by ammonolysis of ethyl chloride. The correct structure of amines is :



Aromatic Compounds

By
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Given below are two statements:

Statement-I : o-Nitrophenol is steam volatile due to intramolecular hydrogen bonding.

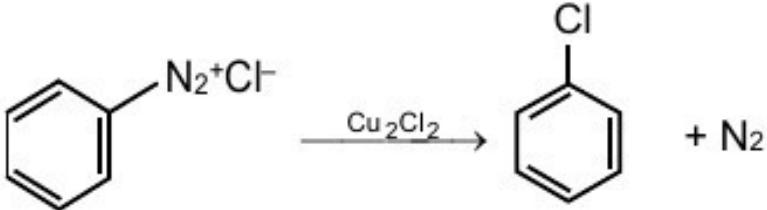
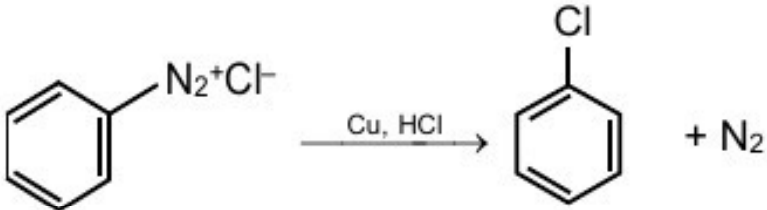
Statement-II : o-Nitrophenol has high melting due to hydrogen bonding.

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

Aromatic Compounds

By
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Match **List-I** with **List-II**.

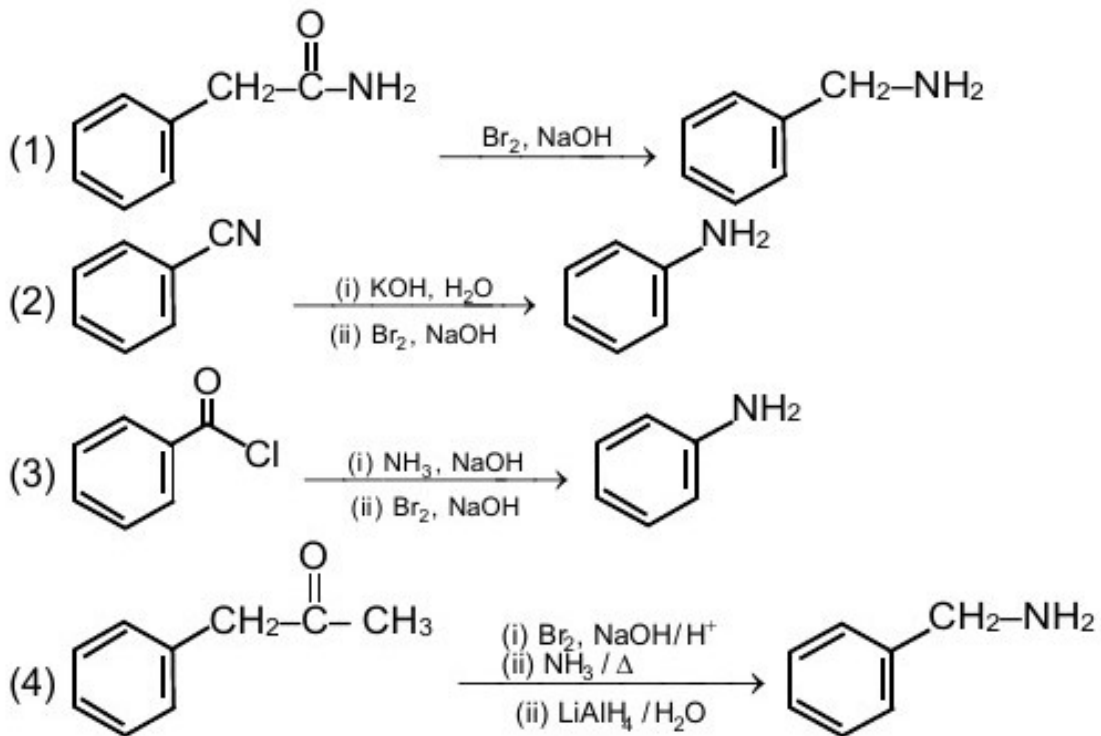
	List-I		List-II
(a)	 <p><chem>c1ccccc1[N+]#N.[Cl-] + Cu2Cl2 -> c1ccccc1Cl + N2</chem></p>	(i)	Wurtz reaction
(b)	 <p><chem>c1ccccc1[N+]#N.[Cl-] + Cu, HCl -> c1ccccc1Cl + N2</chem></p>	(ii)	Sandmeyer reaction
(c)	$2\text{CH}_3\text{CH}_2\text{Cl} + 2\text{Na} \xrightarrow{\text{Ether}} \text{C}_2\text{H}_5\text{-C}_2\text{H}_5 + 2\text{NaCl}$	(iii)	Fittig reaction
(d)	$2\text{C}_6\text{H}_5\text{Cl} + 2\text{Na} \xrightarrow{\text{Ether}} \text{C}_6\text{H}_5\text{-C}_6\text{H}_5 + 2\text{NaCl}$	(iv)	Gatterman reaction

Choose the correct answer from the options given below:

Aromatic Compounds

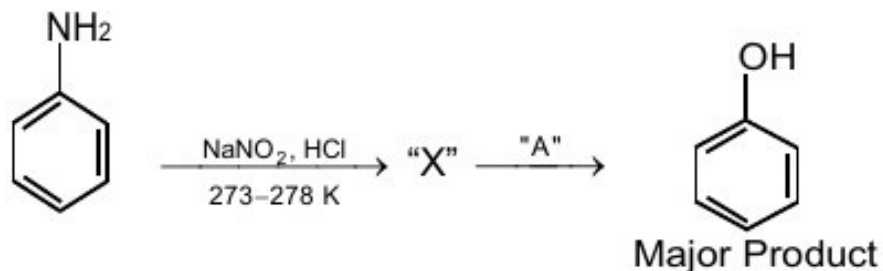
By
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Which of the following reaction DOES NOT involve Hoffmann bromamide degradation ?

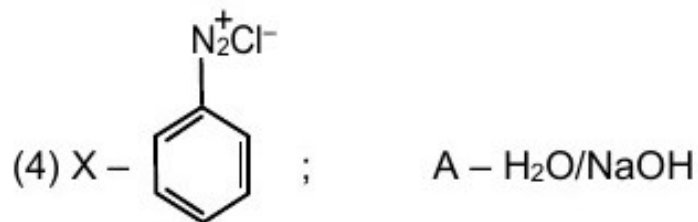
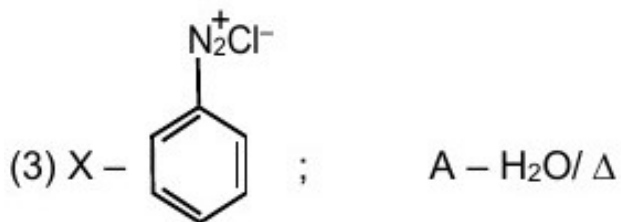
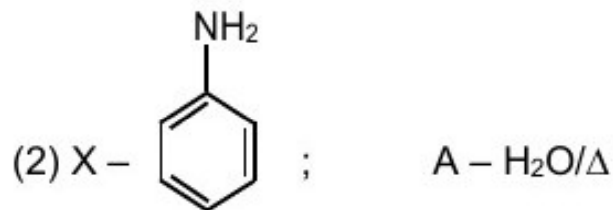
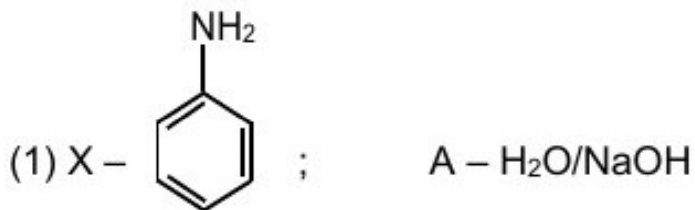


Aromatic Compounds

By
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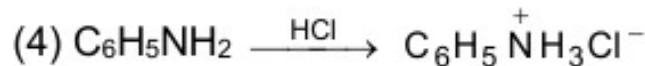
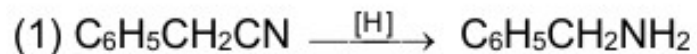
In the above chemical reaction, intermediate "X" and reagent/condition "A" are :



Aromatic Compounds

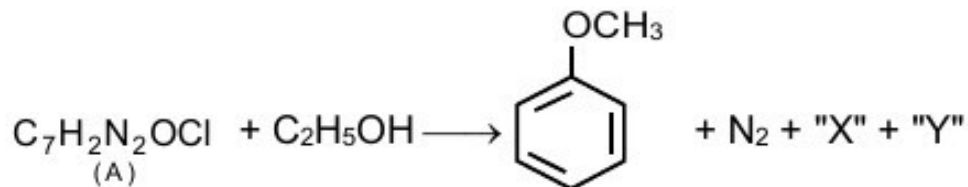
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Which of the following reaction is an example of ammonolysis ?

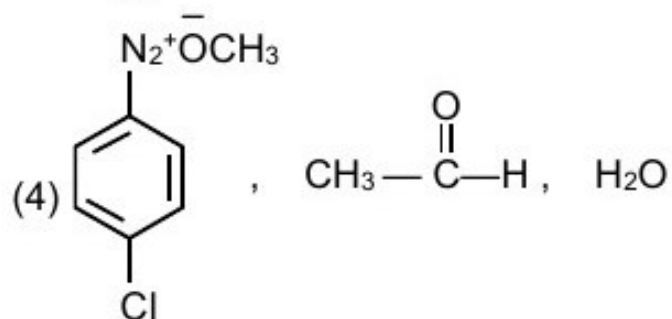
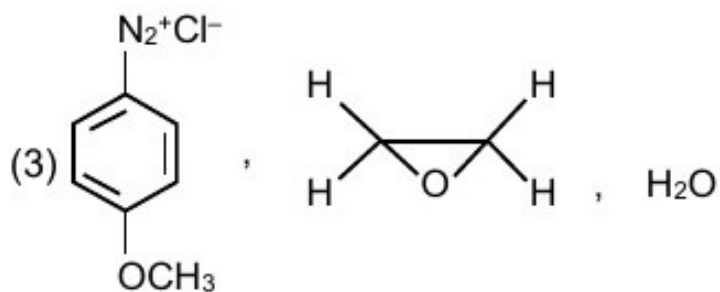
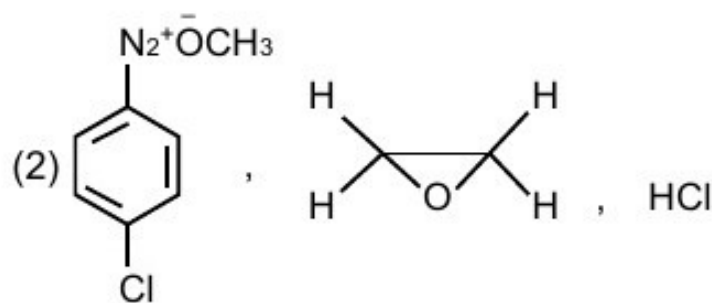
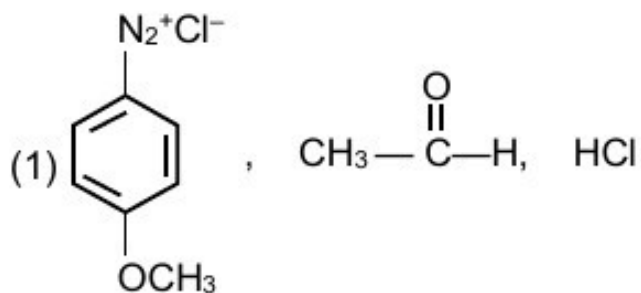


Aromatic Compounds

By
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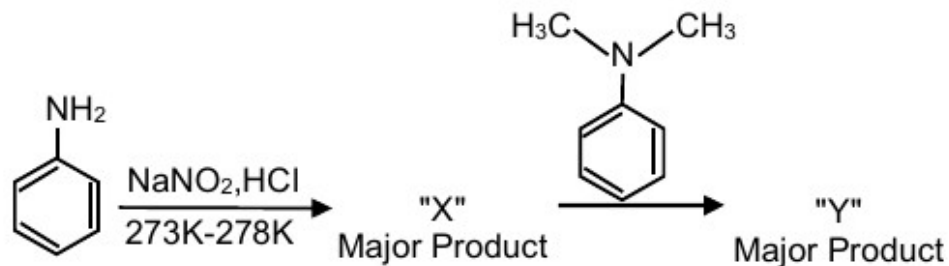


In the above reaction, the structural formula of (A), "X" and "Y" respectively are:

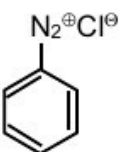
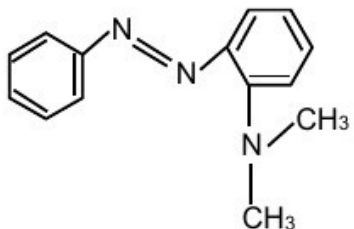
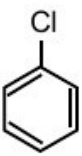
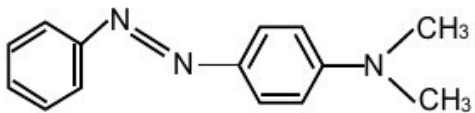
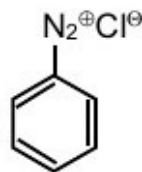
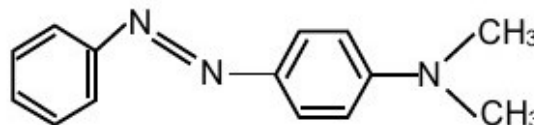
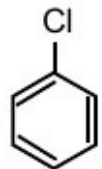
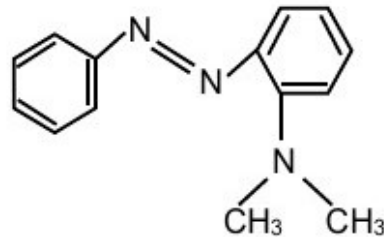


Aromatic Compounds

By
Sinha Sir, Kota



Products X & Y are respectively?

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

Aromatic Compounds

By

Sinha Sir, Kota

A reaction of 0.1 mole of Benzylamine with bromomethane gave 23 g of Benzyl trimethyl ammonium bromide. The number of moles of bromomethane consumed in this reaction are $n \times 10^{-1}$, when $n =$ (Round off to the Nearest Integer.)

[Given: Atomic masses: C : 12.0 u, H : 1.0 u, N : 14.0 u, Br : 80.0 u]

Aromatic Compounds

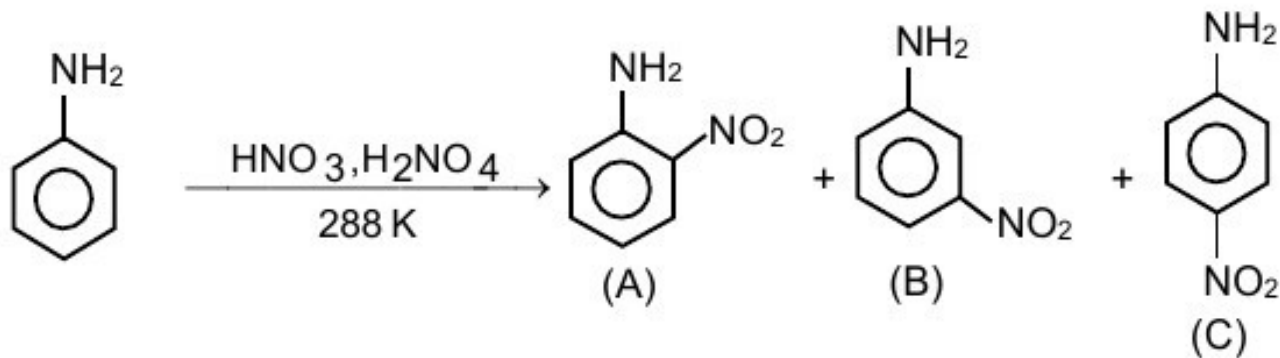
By
Sinha Sir, Kota

An organic compound "A" on treatment with benzene sulphonyl chloride gives compound B. B is soluble in in dil. NaOH solution. Compound A is:

- (1) $\text{C}_6\text{H}_5 - \text{N} - (\text{CH}_3)_2$ (2) $\text{C}_6\text{H}_5 - \text{CH}_2\text{NHCH}_3$ (3) $\text{C}_6\text{H}_5 - \underset{\text{CH}_3}{\text{CH}} - \text{NH}_2$ (4) $\text{C}_6\text{H}_5 - \text{NHCH}_2\text{CH}_3$

Aromatic Compounds

By
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Consider the given reaction, percentage yield of :

(1) $C > B > A$

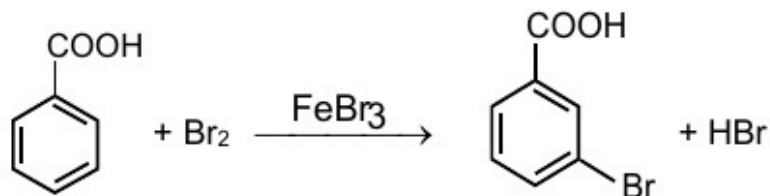
(2) $B > C > A$

(3) $A > C > B$

(4) $C > A > B$

Aromatic Compounds

By
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Consider the above reaction where 6.1 g of Benzoic acid used to get 7.8 g of m-bromo benzoic acid. The percentage yield of the product is _____ .

(Round off to the Nearest Integer).

[Given : Atomic masses : C : 12.0 μ , H : 1.0 μ , O : 16.0 μ , Br : 80.0 μ]

Aromatic Compounds

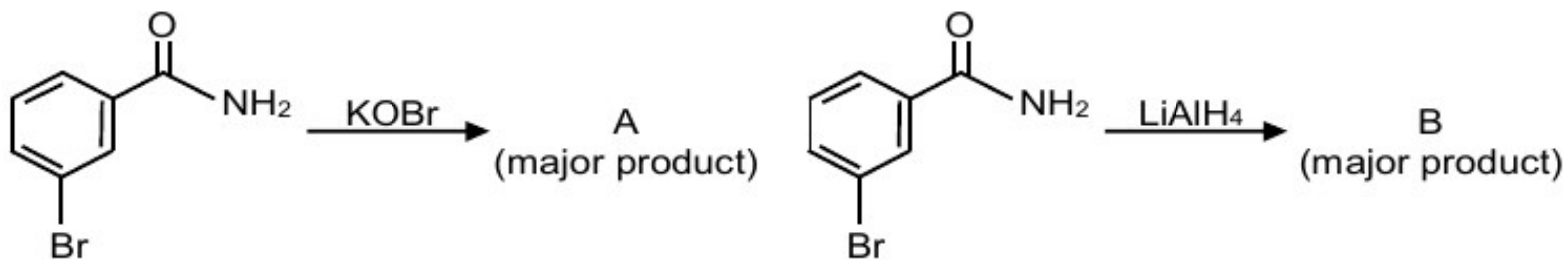
By
Sinha Sir, Kota

Compound A is converted to B on reaction with CHCl_3 and KOH. The compound B is toxic and can be decomposed by C. A, B and C respectively are :

- (1) Primary amine, isonitrile compound, conc. HCl
- (2) Secondary amine, nitrile compound, conc. NaOH
- (3) Primary amine, nitrile compound, conc. HCl
- (4) Secondary amine, isonitrile compound, conc. NaOH

Aromatic Compounds

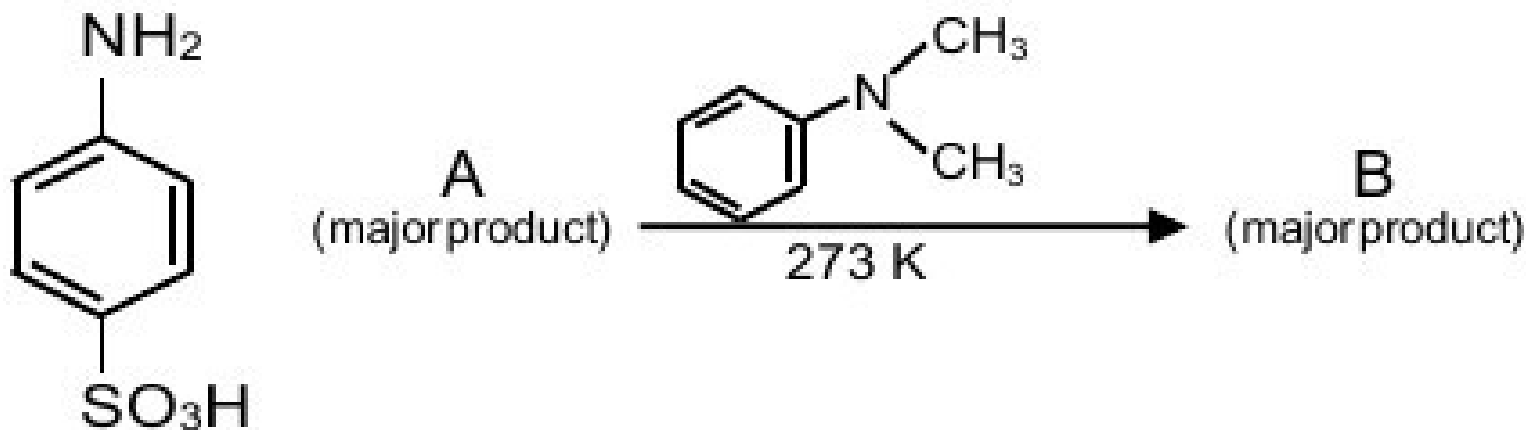
By
Sinha Sir, Kota



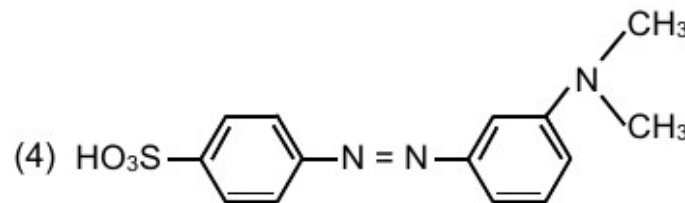
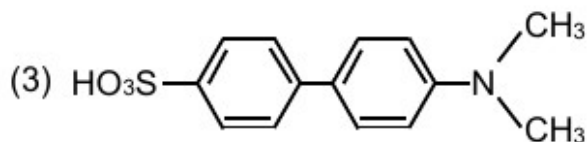
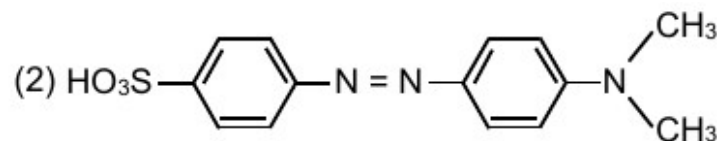
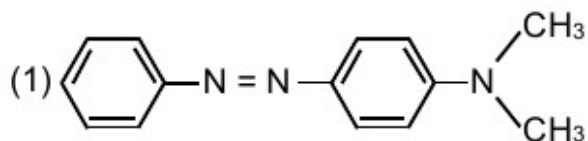
In the above reactions, product A and product B respectively are:

Aromatic Compounds

By
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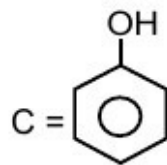
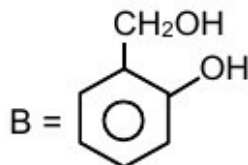
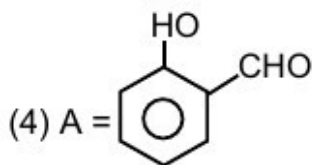
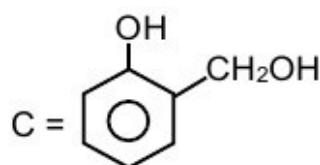
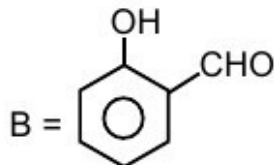
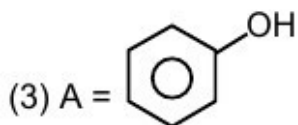
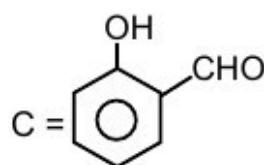
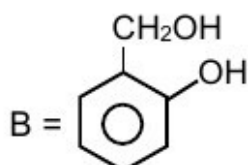
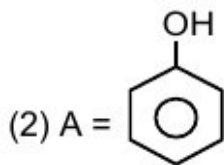
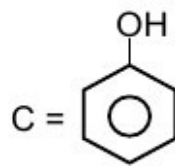
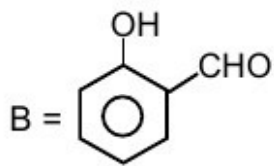
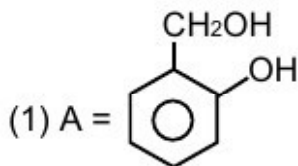
Consider the above reaction, compound B is :



Aromatic Compounds

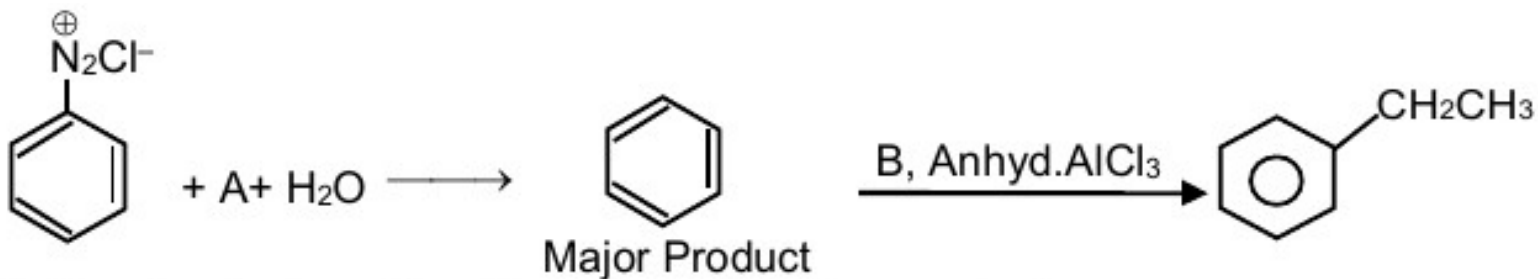
By
Sinha Sir, Kota

An organic compound A (C_6H_6O) gives dark green colouration with ferric chloride. On treatment with $CHCl_3$ and KOH followed by acidification gives compound B. Compound B can also be obtained from compound C on reaction with pyridinium chlorochromate (PCC). Identify A, B and C.



Aromatic Compounds

By
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In the chemical reaction given above A & B respectively are:

(1) H_3PO_2 and $\text{CH}_3\text{CH}_2\text{Cl}$

(3) H_3PO_2 and $\text{CH}_3\text{CH}_2\text{OH}$

(2) $\text{CH}_3\text{CH}_2\text{Cl}$ and H_3PO_2

(4) $\text{CH}_3\text{CH}_2\text{OH}$ and H_3PO_2

Aromatic Compounds

By

Sinha Sir, Kota

Given below are two statements, one is labelled as Assertion (A) and other is labelled as **Reason (R)**.

Assertion (A) : Gabriel phthalimide synthesis cannot be used to prepare aromatic primary amines.

Reason (R) : Aryl halides do not undergo nucleophilic substitution reaction.

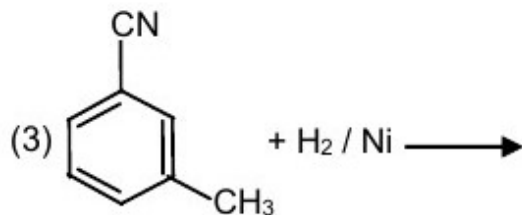
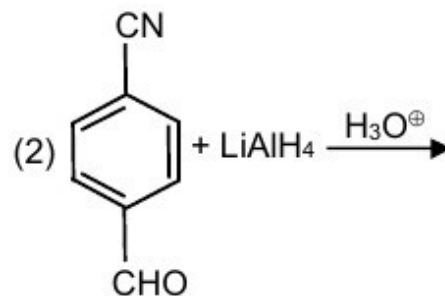
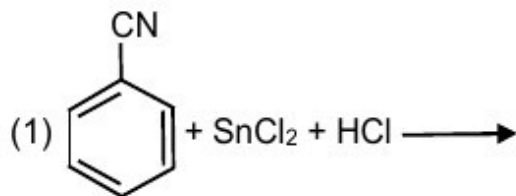
In the light of the above statements, choose the correct answer from the options given below:

- (1) (A) is true but (R) is false
- (2) (A) is false but (R) is true
- (3) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (4) Both (A) and (R) are true but (R) is correct explanation of (A)

Aromatic Compounds

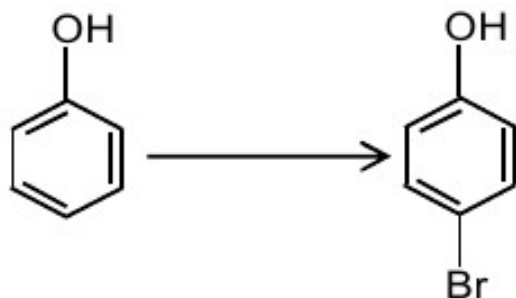
By
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Which one of the products of the following reactions does not react with Hinsberg reagent to form sulphonamide :



Aromatic Compounds

By
Sinha Sir, Kota



(Major Product)

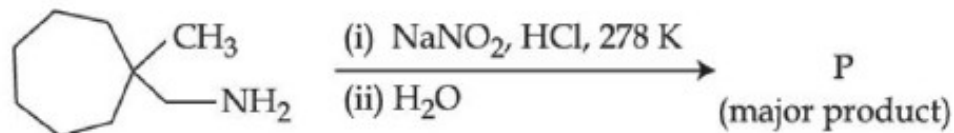
The given reaction can occur in the presence of :

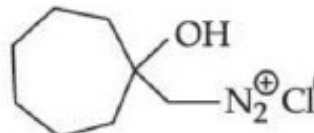

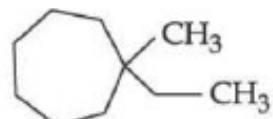
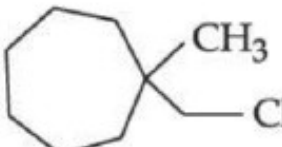
- (a) Bromine water (b) Br_2 in CS_2 , 273 K (c) $\text{Br}_2/\text{FeBr}_3$ (d) Br_2 in CHCl_3 , 273 K
- (1) (a), (b) and (d) only (2) (b) and (d) only
- (3) (b), (c) and (d) only (4) (a) and (c) only

Aromatic Compounds

By
Sinha Sir, Kota

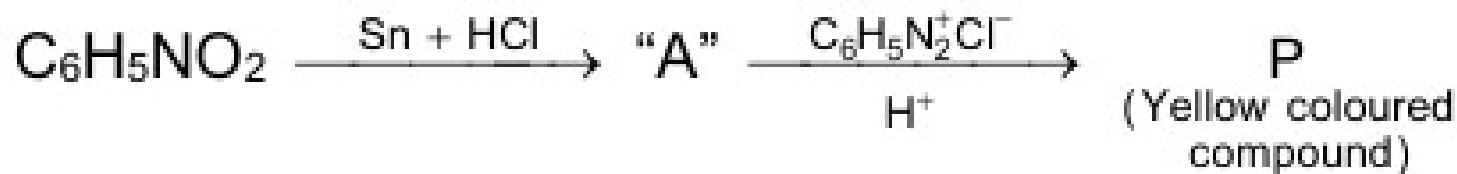
What is the major product "P" of the following reaction?



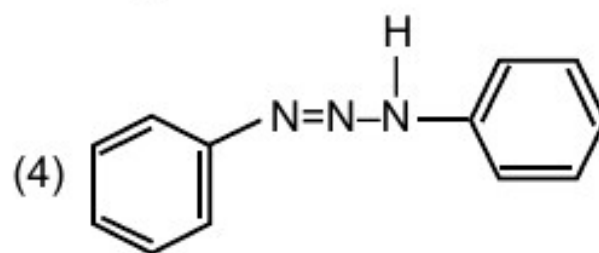
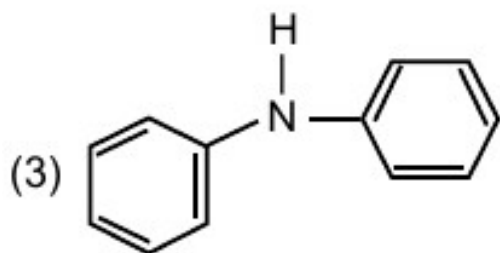
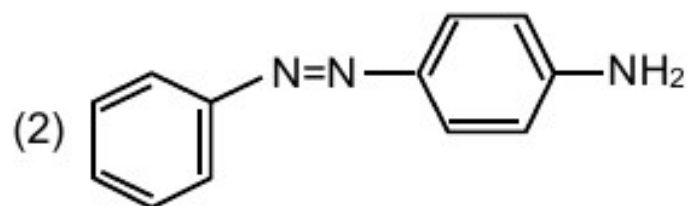
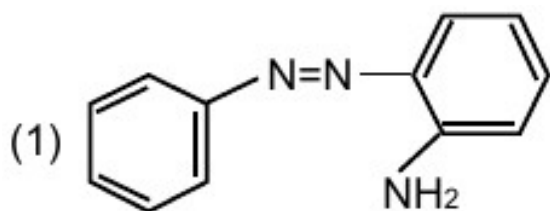
- (1)  (2)  (3)  (4) 

Aromatic Compounds

By
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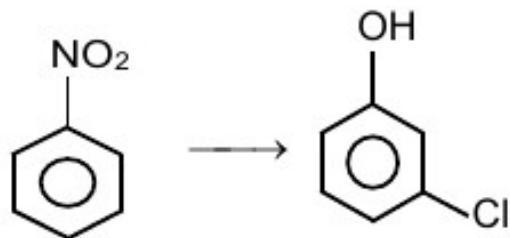
Consider the above reaction, the Product "P" is:



Aromatic Compounds

By
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The correct sequence of correct reagents for the following transformation is :

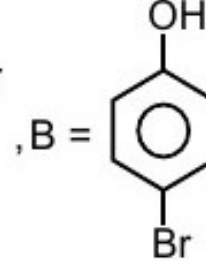
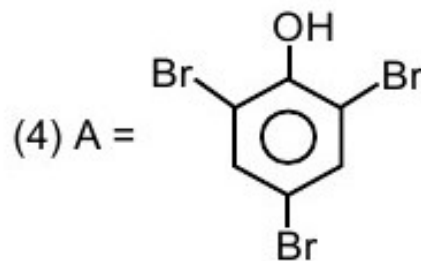
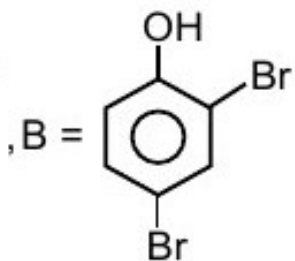
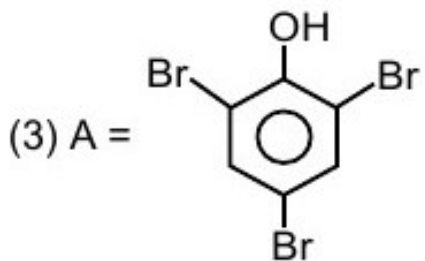
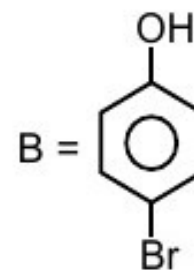
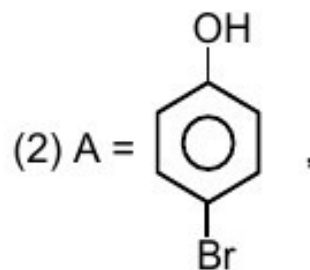
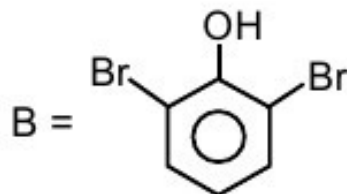
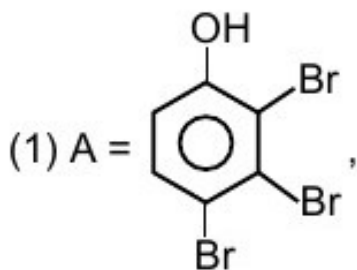
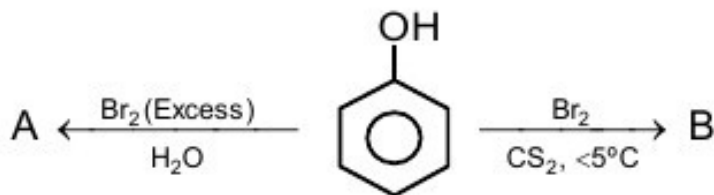


- | | | | |
|---|---|--|--------------------------------------|
| (1) (i) Fe, HCl | (ii) NaNO_2/HCl , 0°C | (iii) $\text{H}_2\text{O}/\text{H}^+$ | (iv) Cl_2 , FeCl_3 |
| (2) (i) Cl_2 , FeCl_3 | (ii) NaNO_2/HCl , 0°C | (iii) Fe, HCl | (iv) $\text{H}_2\text{O}/\text{H}^+$ |
| (3) (i) Fe, HCl | (ii) Cl_2 , HCl | (iii) NaNO_2/HCl , 0°C | (iv) $\text{H}_2\text{O}/\text{H}^+$ |
| (4) (i) Cl_2 , FeCl_3 | (ii) Fe, HCl | (iii) NaNO_2/HCl , 0°C | (iv) $\text{H}_2\text{O}/\text{H}^+$ |

Aromatic Compounds

By
Sinha Sir, Kota

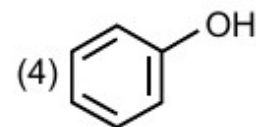
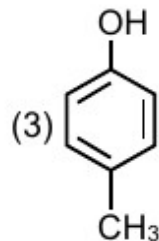
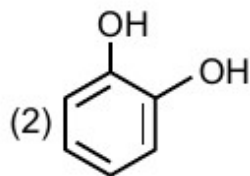
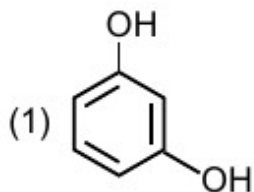
The correct options for the products A and B of the following reactions are :



Aromatic Compounds

By
Sinha Sir, Kota

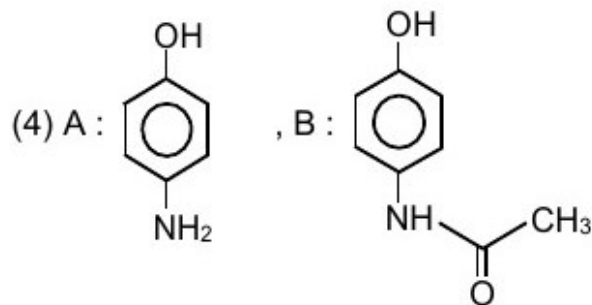
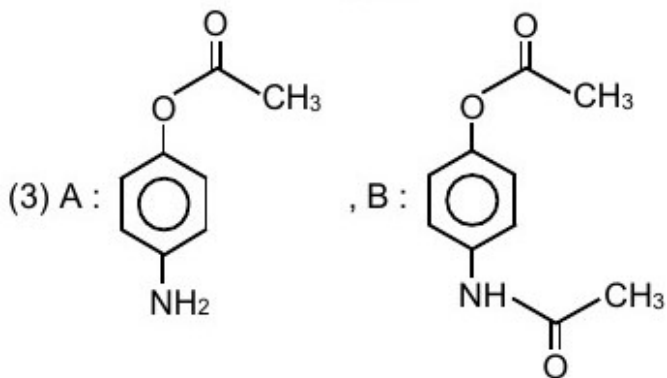
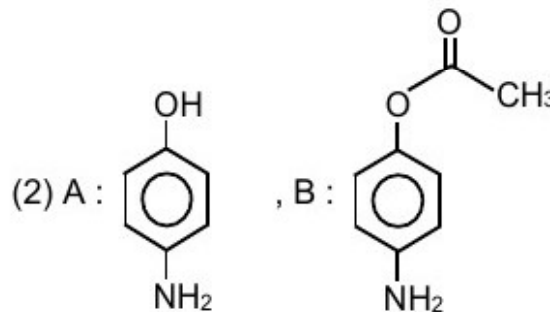
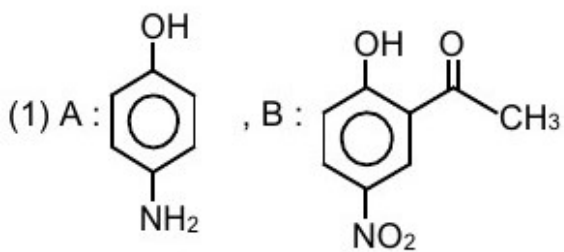
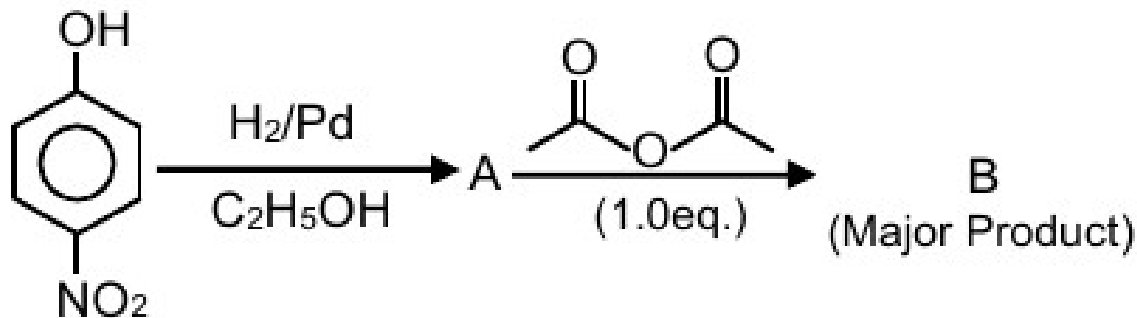
Which one of the following phenols does not give colour when condensed with phthalic anhydride in presence of conc. H_2SO_4 ?



Aromatic Compounds

By
Sinha Sir, Kota

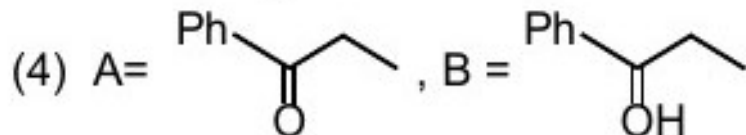
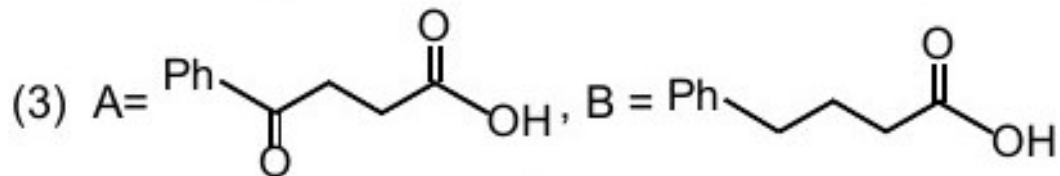
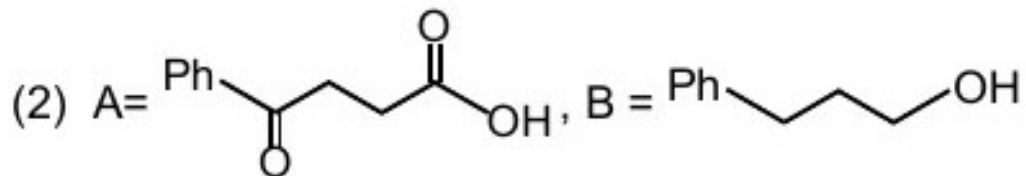
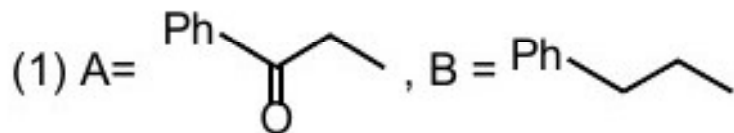
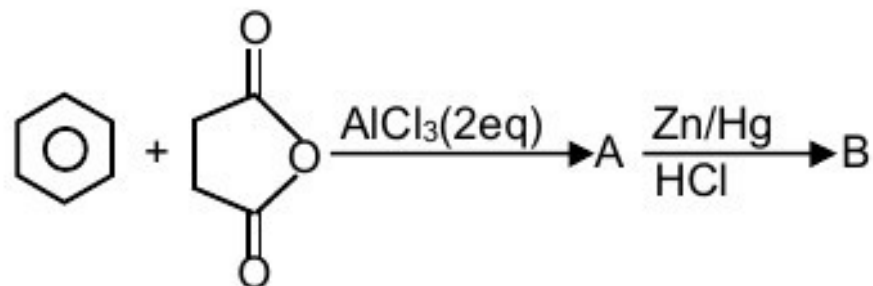
The correct structures of A and B formed in the following reactions are :



Aromatic Compounds

By
Sinha Sir, Kota

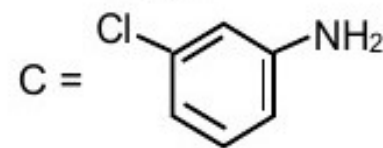
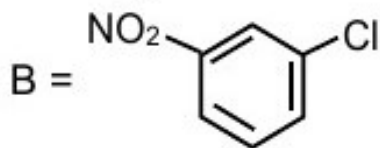
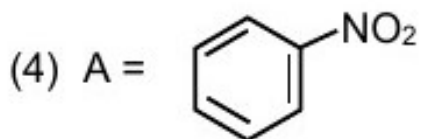
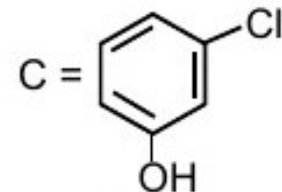
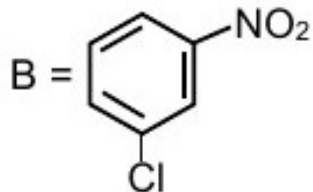
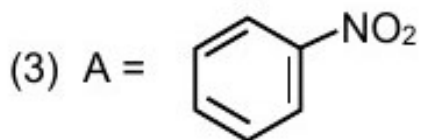
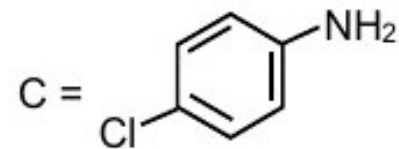
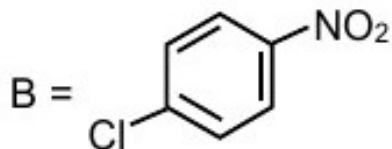
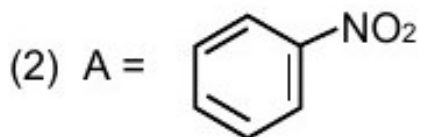
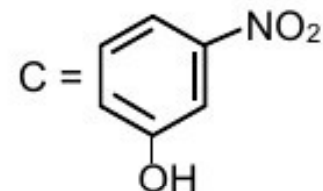
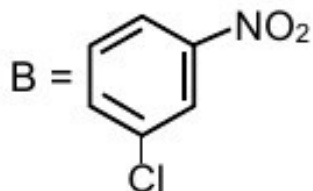
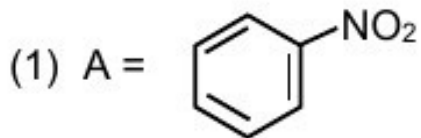
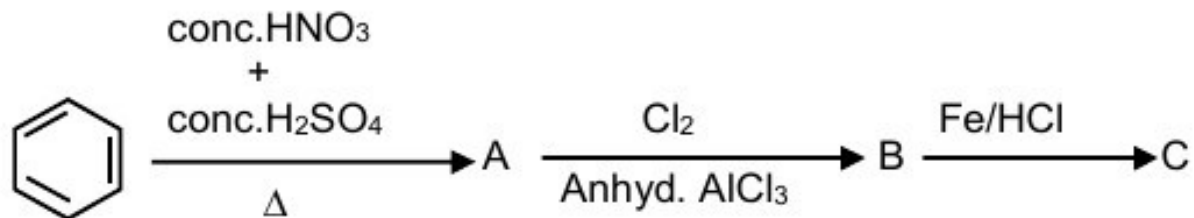
The structures of A and B formed in the following reaction are: [Ph=–C₆H₅]



Aromatic Compounds

By
Sinha Sir, Kota

Identify correct A, B and C in reaction sequence given below :



Aromatic Compounds

By

Sinha Sir, Kota

Which one of the following gives the most stable Diazonium salt?

