

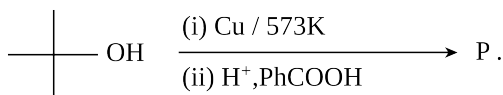
JEE MAIN ALCOHOLS, PHENOLS AND ETHERS — PYQS

Max. Marks: 204

Questions: 51

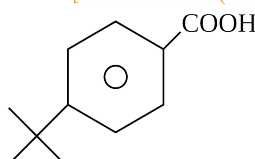
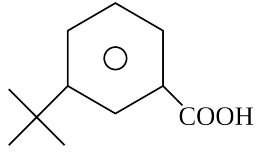
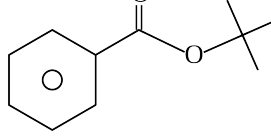
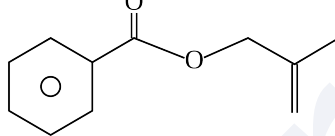
Section A (MCQ) — 47 questions

Q.1 Consider the following sequence of reactions



The major product P is:

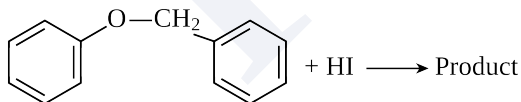
[JEE Main 2026 (Online) 6th April Morning Shift]

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

Scan or tap for the full solution



Q.2 Consider the following reaction.



Statement-I: In the above reaction, product formed will be a mixture of benzyl alcohol and iodobenzene.

Statement-II: In the above reaction, the $-\text{O}-\text{CH}_2-$ bond is cleaved to give the product.

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

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

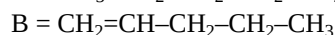
- (1) Both Statement-I and Statement-II are true
 (2) Both Statement-I and Statement-II are false
 (3) Statement-I is true but Statement-II is false

(4) Statement-I is false but Statement-II is true

Scan or tap for the full solution



Q.3 Consider compounds A, B and C with following structural formulae



For the conversion of B from A, reagent (D) required is _____ and structural formula of product (E) obtained when C undergoes same reaction using excess reagent (D) is _____.

[JEE Main 2026 (Online) 5th April Morning Shift]

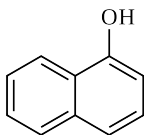
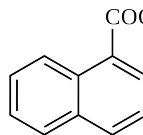
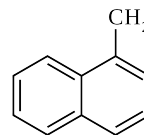
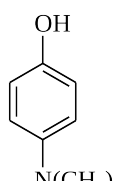
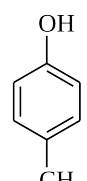
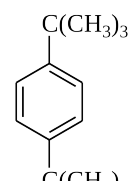
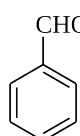
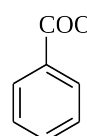
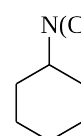
- (1) D: Conc. H_2SO_4 ; E: $\text{CH}_2\text{=CH--CH(OH)CH}_3$
 (2) D: PCC; E: $\text{HO--CH}_2\text{--CH}_2\text{--CH=CH}_2$
 (3) D: PCC; E: $\text{CH}_2\text{=CH--CH=CH}_2$
 (4) D: Conc. H_2SO_4 or H_3PO_4 ; E: $\text{CH}_2\text{=CH--CH=CH}_2$



Solution

Q.4 Amongst the following, the total number of compounds soluble in aqueous NaOH at room temperature is:

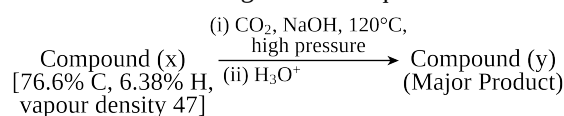
[JEE Main 2026 (Online) 4th April Morning Shift]

- | | | |
|--|---|---|
|  |  |  |
| (I) | (II) | (III) |
|  |  |  |
| (IV) | (V) | (VI) |
|  |  |  |
| (VII) | (VIII) | (IX) |
- (1) 5 (2) 4 (3) 6 (4) 3

Scan or tap for the full solution



Q.5 Consider the following reaction sequence :



Compound (y) develops characteristic colour with neutral FeCl_3 solution.

Identify the **INCORRECT** statement from the following for the above sequence.

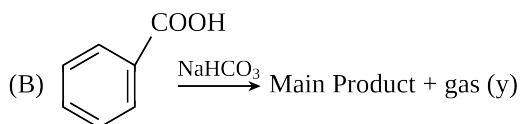
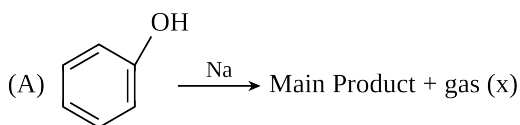
[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) Compound y will dissolve in NaHCO_3 and evolve a gas.
- (2) Compound x is more acidic than compound y.
- (3) Both compounds x and y will dissolve in NaOH .
- (4) Both compounds x and y will burn with sooty flame.

Scan or tap for the full solution



Q.6 Consider the following two reactions A and B.



Numerical value of [molar mass of x + molar mass of y] is _____

[JEE Main 2026 (Online) 24th January Morning Shift]

- (1) 46 (2) 160 (3) 88 (4) 4

Scan or tap for the full solution



Q.7 A hydroxy compound (X) with molar mass 122 g mol^{-1} is acetylated with acetic anhydride, using a large excess of the reagent ensuring complete acetylation of all hydroxyl groups. The product obtained has a molar mass of 290 g mol^{-1} . The number of hydroxyl groups present in compound (X) is:

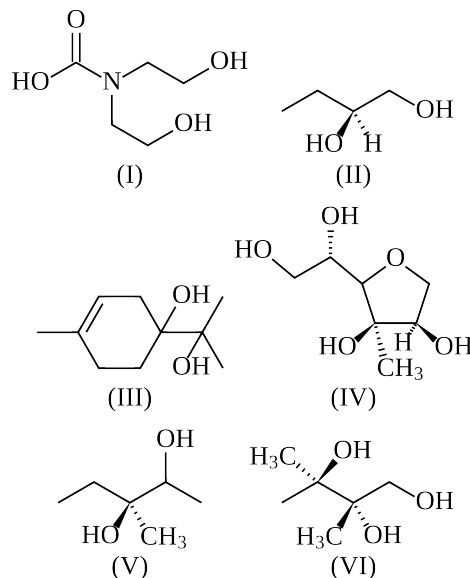
[JEE Main 2026 (Online) 24th January Morning Shift]

- (1) 2 (2) 4 (3) 3 (4) 5

Scan or tap for the full solution



Q.8 From the following, how many compounds contain at least one secondary alcohol?



Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 24th January Evening Shift]

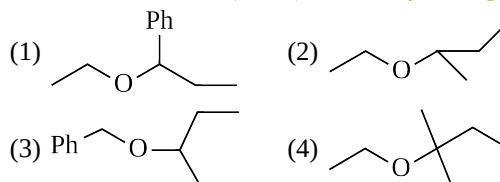
- (1) Three (2) Two (3) Four (4) Five

Scan or tap for the full solution



Q.9 A mixed ether (P), when heated with excess of hot concentrated hydrogen iodide produces two different alkyl iodides which when treated with aq. NaOH give compounds (Q) and (R). Both (Q) and (R) give yellow precipitate with NaOI . Identify the mixed ether (P) :

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



Scan or tap for the full solution



Q.10 Given below are two statements :

Statement-I: Phenol on treatment with $\text{CHCl}_3/\text{aq. KOH}$ under refluxing condition, followed by acidification produces p-hydroxybenzaldehyde as the major product and o-hydroxybenzaldehyde as the minor product.

Statement-II: The mixture of p-hydroxybenzaldehyde and o-hydroxybenzaldehyde can be easily separated through steam distillation.

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

[JEE Main 2026 (Online) 22nd January Morning Shift]

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

(4) Statement-I is false but Statement-II is true

Scan or tap for the full solution



Q.11 3,3-Dimethyl-2-butanol cannot be prepared by :

- A. $\xrightarrow[\text{H}_3\text{O}^+]{\text{MeMgBr-dry ether}}$
- B. $\xrightarrow{\text{H}_2\text{O}/\text{H}^+}$
- C. $\xrightarrow[\text{(ii) NaBH}_4/\text{MeOH}]{\text{(i) O}_3/\text{Zn-H}_2\text{O}}$
- D. $\xrightarrow{\text{LiAlH}_4/\text{H}_3\text{O}^+}$
- E. $\xrightarrow{\text{H}_2\text{O, Hg}^{2+}/\text{H}^+}$

Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) B and E Only (2) B, C and E Only
(3) B and C Only (4) B Only

Scan or tap for the full solution



Q.12 Which one of the following reactions will not lead to the desired ether formation in major proportion?
(iso-Bu $\Rightarrow$ isobutyl, sec-Bu $\Rightarrow$ sec-butyl, n-Pr $\Rightarrow$ n-propyl, 'Bu $\Rightarrow$ tert-butyl, Et $\Rightarrow$ ethyl)

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

- (1) $\text{Na}^+ \text{O}^- \text{C}_6\text{H}_5 + \text{n-Pr Br} \longrightarrow \text{n-Pr-O-C}_6\text{H}_5$
- (2) $\text{iso-Bu-O}^- \text{Na}^+ + \text{sec-BuBr} \longrightarrow \text{sec-Bu-O-iso-Bu}$
- (3) $\text{Cyclohexyl-O}^- \text{Na}^+ + \text{CH}_3 \text{Br} \longrightarrow \text{Cyclohexyl-O-CH}_3$
- (4) $\text{'BuO}^- \text{Na}^+ + \text{EtBr} \longrightarrow \text{'Bu-O-Et}$

Scan or tap for the full solution



Q.13 Given below are two statements :

Statement-I: Dimethyl ether is completely soluble in water. However, diethyl ether is soluble in water to a very small extent.

Statement-II: Sodium metal can be used to dry diethyl ether and not ethyl alcohol.

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

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

- (1) Statement-I is false but Statement-II is true

(2) Statement-I is true but Statement-II is false

(3) Both Statement-I and Statement-II are true

(4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



Q.14 Benzene is treated with oleum to produce compound (X) which when further heated with molten sodium hydroxide followed by acidification produces compound (Y). The compound Y is treated with zinc metal to produce compound (Z). Identify the structure of compound (Z) from the following options.

[JEE Main 2025 (Online) 4th April Morning Shift]

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

Scan or tap for the full solution



Q.15 An organic compound (X) with molecular formula $\text{C}_3\text{H}_6\text{O}$ is not readily oxidised. On reduction it gives $\text{C}_3\text{H}_8\text{O}$ (Y) which reacts with HBr to give a bromide (Z) which is converted to Grignard reagent. This Grignard reagent on reaction with (X) followed by hydrolysis gives 2,3-dimethylbutan-2-ol. Compounds (X), (Y) and (Z) respectively are:

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) $\text{CH}_3\text{CH}_2\text{CHO}$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
(2) CH_3COCH_3 , $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$, $\text{CH}_3\text{CH}(\text{Br})\text{CH}_3$
(3) CH_3COCH_3 , $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_3\text{CH}(\text{Br})\text{CH}_3$
(4) $\text{CH}_3\text{CH}_2\text{CHO}$, $\text{CH}_3\text{CH}=\text{CH}_2$, $\text{CH}_3\text{CH}(\text{Br})\text{CH}_3$

Scan or tap for the full solution



Q.16 A toxic compound "A" when reacted with NaCN in aqueous acidic medium yields an edible cooking component and food preservative "B". "B" is converted to "C" by diborane and can be used as an additive to petrol to reduce emission. "C" upon reaction with oleum at 140°C yields an inhalable anesthetic "D". Identify "A", "B", "C" & "D", respectively :

[JEE Main 2025 (Online) 4th April Evening Shift]

- (1) Methanol; acetic acid; ethanol; diethyl ether
(2) Ethanol; acetonitrile; ethylamine; ethylene
(3) Methanol; formaldehyde; methyl chloride; chloroform

(4) Acetaldehyde; 2-hydroxypropanoic acid; propanoic acid; dipropyl ether

Scan or tap for the full solution



Q.17 Which one of the following, with HBr will give a phenol?

[JEE Main 2025 (Online) 29th January Evening Shift]

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

Scan or tap for the full solution



Q.18 Given below are two statements :

Statement-I: The boiling points of alcohols and phenols increase with increase in the number of C-atoms.

Statement-II: The boiling points of alcohols and phenols are higher in comparison to other class of compounds such as ethers, haloalkanes.

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

[JEE Main 2025 (Online) 23rd January Evening Shift]

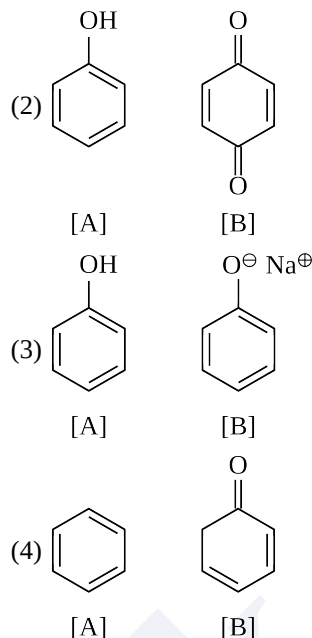
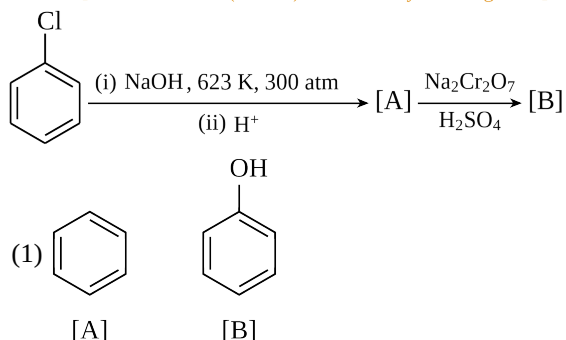
- (1) Statement-I is false but Statement-II is true
 (2) Both Statement-I and Statement-II are true
 (3) Statement-I is true but Statement-II is false
 (4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



Q.19 Identify the products [A] and [B], respectively in the following reaction:

[JEE Main 2025 (Online) 23rd January Evening Shift]

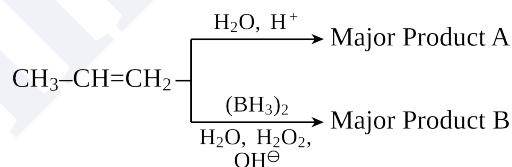


Scan or tap for the full solution



Q.20 Identify the product A and product B in the following set of reactions.

[JEE Main 2024 (Online) 9th April Morning Shift]

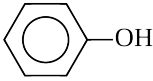
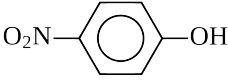
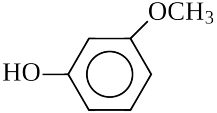
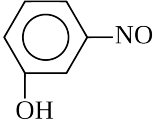
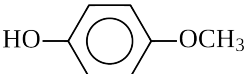


- (1) A - $\text{CH}_3\text{CH}_2\text{CH}_2\text{-OH}$ B - $\text{CH}_3\text{CH(OH)-CH}_3$
 (2) A - $\text{CH}_3\text{-CH(OH)-CH}_3$ B - $\text{CH}_3\text{CH}_2\text{CH}_2\text{-OH}$
 (3) A - $\text{CH}_3\text{CH}_2\text{CH}_2\text{-OH}$ B - $\text{CH}_3\text{CH}_2\text{CH}_2\text{-OH}$
 (4) A - $\text{CH}_3\text{CH}_2\text{CH}_3$ B - $\text{CH}_3\text{CH}_2\text{CH}_3$

Scan or tap for the full solution



Q.21 For the given compounds, the correct order of increasing pK_a value :

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

Choose the correct answer from the options given below : [JEE Main 2024 (Online) 9th April Morning Shift]

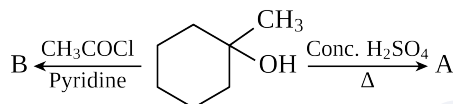
- (1) (E) < (D) < (C) < (B) < (A)
 (2) (B) < (D) < (A) < (C) < (E)
 (3) (D) < (E) < (C) < (B) < (A)
 (4) (E) < (D) < (B) < (A) < (C)

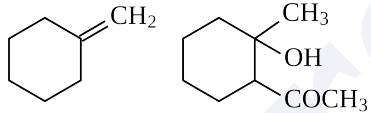
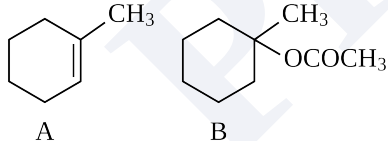
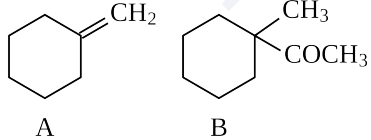
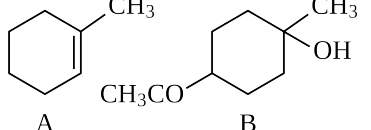


Solution

Q.22 Identify the major products A and B respectively in the following set of reactions.

[JEE Main 2024 (Online) 8th April Morning Shift]

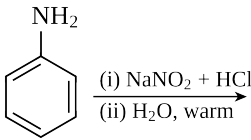
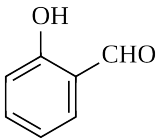
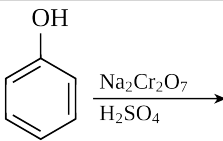
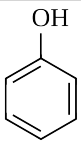
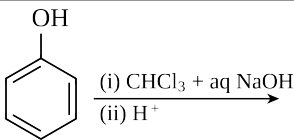
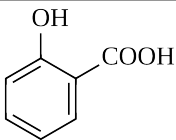
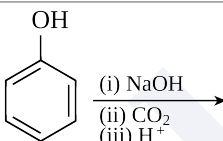
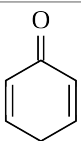


- (1) 
- (2) 
- (3) 
- (4) 

Scan or tap for the full solution



Q.23 Match List I with List II

List – I (Reactions)		List – II (Products)	
A.		I.	
B.		II.	
C.		III.	
D.		IV.	

Choose the correct answer from the options given below : [JEE Main 2024 (Online) 8th April Evening Shift]

- (1) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)
 (2) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)
 (3) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
 (4) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)

Scan or tap for the full solution



Q.24 Which one of the following compounds will readily react with dilute NaOH ?

[JEE Main 2024 (Online) 8th April Evening Shift]

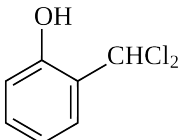
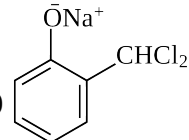
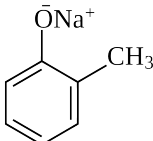
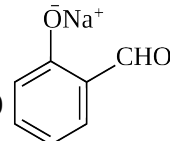
- (1) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ (2) $\text{C}_2\text{H}_5\text{OH}$
 (3) $\text{C}_6\text{H}_5\text{OH}$ (4) $(\text{CH}_3)_3\text{COH}$

Scan or tap for the full solution



Q.25 In Reimer - Tiemann reaction, phenol is converted into salicylaldehyde through an intermediate. The structure of intermediate is _____.

[JEE Main 2024 (Online) 6th April Morning Shift]

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

Scan or tap for the full solution



Q.26 Given below are two statements :
Statement-I: Picric acid is 2,4,6 - trinitrotoluene.

Statement-II: Phenol - 2,4 - disulphonic acid is treated with Conc. HNO_3 to get picric acid.

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

[JEE Main 2024 (Online) 6th April Morning Shift]

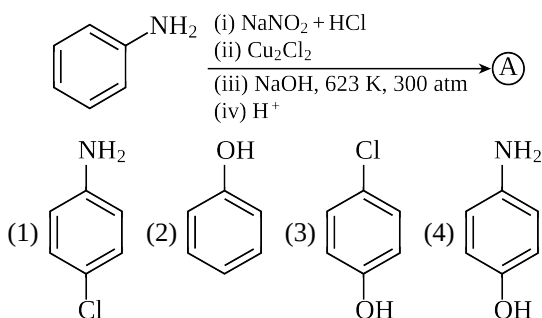
- (1) Statement-I is incorrect but Statement-II is correct
- (2) Both Statement-I and Statement-II are incorrect
- (3) Both Statement-I and Statement-II are correct
- (4) Statement-I is correct but Statement-II is incorrect

Scan or tap for the full solution



Q.27 Identify the product A in the following reaction.

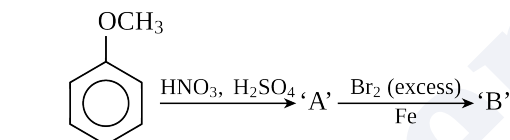
[JEE Main 2024 (Online) 6th April Evening Shift]



Scan or tap for the full solution

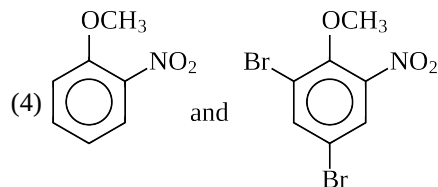
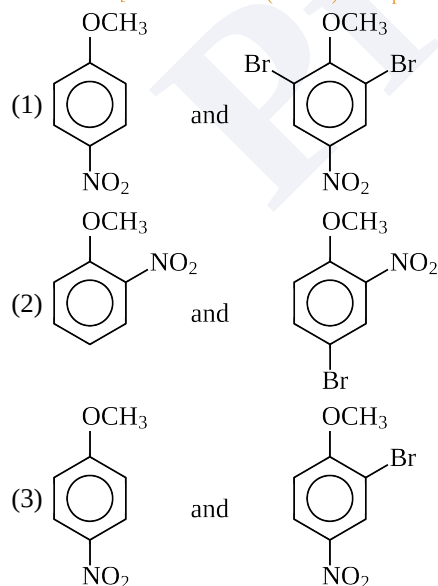


Q.28 The major products formed :



A and B respectively are :

[JEE Main 2024 (Online) 6th April Evening Shift]



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Q.29 Given below are two statements :

Statement-I: Bromination of phenol in solvent with low polarity such as CHCl_3 or CS_2 requires Lewis acid catalyst.

Statement-II: The Lewis acid catalyst polarises the bromine to generate Br^+ .

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

[JEE Main 2024 (Online) 5th April Morning Shift]

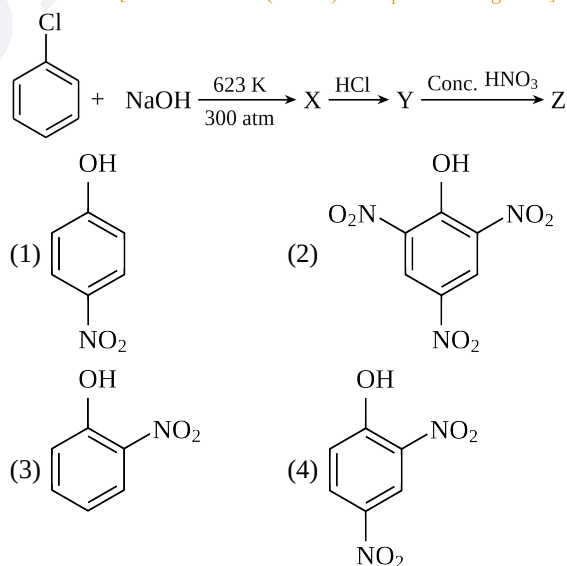
- (1) Statement-I is true but Statement-II is false
- (2) Both Statement-I and Statement-II are true
- (3) Statement-I is false but Statement-II is true
- (4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



Q.30 Identify compound (Z) in the following reaction sequence.

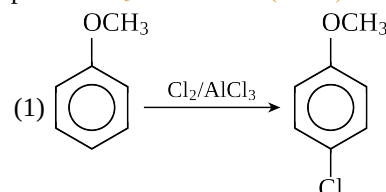
[JEE Main 2024 (Online) 5th April Morning Shift]

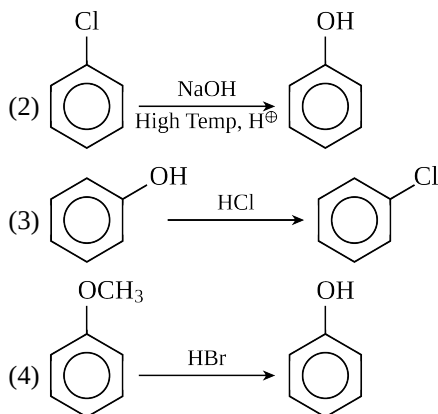


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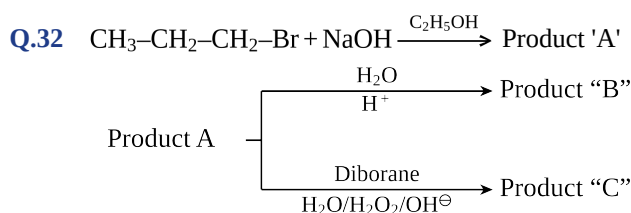


Q.31 Which one of the following reactions is NOT possible? [JEE Main 2024 (Online) 5th April Evening Shift]





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Consider the above reactions, identify product B and product C.

[JEE Main 2024 (Online) 4th April Evening Shift]

- (1) B = C = 1-Propanol
 (2) B = 1-Propanol C = 2-Propanol
 (3) B = C = 2-Propanol
 (4) B = 2-Propanol C = 1-Propanol



Solution

Q.33 Common name of Benzene - 1,2 - diol is -

[JEE Main 2024 (Online) 4th April Evening Shift]

- (1) catechol (2) quinol
 (3) o-cresol (4) resorcinol

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Q.34 Match List - I with List - II.

List I (Reactants)		List II (Product)	
A.	Phenol, Zn/ Δ	I.	Salicylaldehyde
B.	Phenol, CHCl_3 , NaOH, HCl	II.	Salicylic acid
C.	Phenol, CO_2 , NaOH, HCl	III.	Benzene
D.	Phenol, Conc. HNO_3	IV.	Picric acid

Choose the correct answer from the options given below :

[JEE Main 2024 (Online) 1st February Evening Shift]

- (1) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
 (2) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
 (3) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)
 (4) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

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Q.35 Which among the following has highest boiling point?

[JEE Main 2024 (Online) 1st February Evening Shift]

- (1) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{--OH}$
 (2) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
 (3) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$
 (4) $\text{H}_5\text{C}_2\text{--O--C}_2\text{H}_5$



Solution

Q.36 Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion (A): Alcohols react both as nucleophiles and electrophiles.

Reason (R): Alcohols react with active metals such as sodium, potassium and aluminum to yield corresponding alkoxides and liberate hydrogen.

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

[JEE Main 2024 (Online) 31st January Morning Shift]

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

Scan or tap for the full solution



Q.37 Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion (A): pK_a value of phenol is 10.0 while that of ethanol is 15.9 .

Reason (R): Ethanol is stronger acid than phenol.

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

[JEE Main 2024 (Online) 31st January Morning Shift]

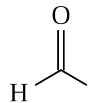
- (1) A is false but R is true.
 (2) Both A and R are true but R is NOT the correct explanation of A.
 (3) Both A and R are true and R is the correct explanation of A.
 (4) A is true but R is false.

Scan or tap for the full solution



Q.38 Salicylaldehyde is synthesized from phenol, when reacted with

[JEE Main 2024 (Online) 30th January Evening Shift]

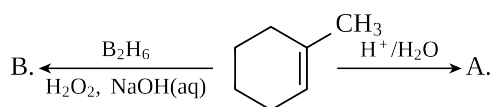
- (1) HCCl_3 , NaOH (2) CO_2 , NaOH
 (3)  , NaOH (4) CCl_4 , NaOH

Scan or tap for the full solution



Q.39 Products A and B formed in the following set of reactions are

[JEE Main 2024 (Online) 30th January Evening Shift]



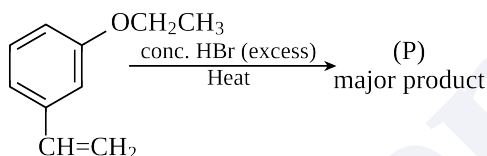
- (1)
- (2)
- (3)
- (4)

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Q.40 The major product(P) in the following reaction is

[JEE Main 2024 (Online) 29th January Morning Shift]



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

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Q.41 Phenol treated with chloroform in presence of sodium hydroxide, which further hydrolyzed in presence of an acid results

[JEE Main 2024 (Online) 29th January Evening Shift]

- (1) Salicylic acid
(2) Benzene-1,2-diol
(3) 2-Hydroxybenzaldehyde
(4) Benzene-1,3-diol



Solution

Q.42 Match List I with List II

List - I (Compound)		List - II (pK _a value)	
A.	Ethanol	I.	10.0
B.	Phenol	II.	15.9
C.	m-Nitrophenol	III.	7.1
D.	p-Nitrophenol	IV.	8.3

Choose the correct answer from the options given below:

[JEE Main 2024 (Online) 29th January Evening Shift]

- (1) A-I, B-II, C-III, D-IV
(2) A-IV, B-I, C-II, D-III
(3) A-II, B-I, C-IV, D-III
(4) A-III, B-IV, C-I, D-II



Solution

Q.43 Given below are two statements :

Statement-I: p-nitrophenol is more acidic than m-nitrophenol and o-nitrophenol.

Statement-II: Ethanol will give immediate turbidity with Lucas reagent.

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

[JEE Main 2024 (Online) 27th January Morning Shift]

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

Scan or tap for the full solution



Q.44 The ascending order of acidity of -OH group in the following compounds is :

(A) Bu - OH

(B)

(C)

(D)

(E)

Choose the correct answer from the options given below:

[JEE Main 2024 (Online) 27th January Morning Shift]

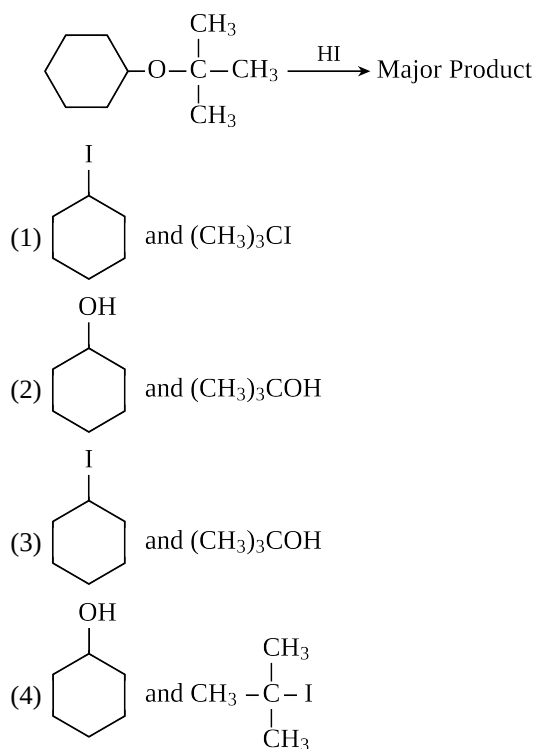
- (1) (A) < (D) < (C) < (B) < (E)
(2) (C) < (A) < (D) < (B) < (E)
(3) (C) < (D) < (B) < (A) < (E)
(4) (A) < (C) < (D) < (B) < (E)



Solution

Q.45 Major product formed in the following reaction is a mixture of :

[JEE Main 2024 (Online) 27th January Evening Shift]



Scan or tap for the full solution



Q.46 Match List - I with List - II.

List - I (Reaction)	
A.	<chem>Oc1ccccc1</chem> $\rightarrow$ <chem>O=C(O)c1ccccc1O</chem>
B.	<chem>Oc1ccccc1</chem> $\rightarrow$ <chem>O=Cc1ccccc1O</chem>
C.	<chem>Oc1ccccc1</chem> $\rightarrow$ <chem>O=C1C=CC(=O)C=C1</chem>
D.	<chem>Oc1ccccc1</chem> $\rightarrow$ <chem>COc1ccccc1</chem>
List - II (Reagent(s))	
I.	<chem>Na2Cr2O7</chem> , <chem>H2SO4</chem>
II.	(i) <chem>NaOH</chem> , (ii) <chem>CH3Cl</chem>
III.	(i) <chem>NaOH</chem> , <chem>CHCl3</chem> , (ii) <chem>NaOH</chem> , (iii) <chem>HCl</chem>

List - II (Reagent(s))

IV. (i) NaOH, (ii) CO2, (iii) HCl

Choose the correct answer from the options given below :

[JEE Main 2024 (Online) 27th January Evening Shift]

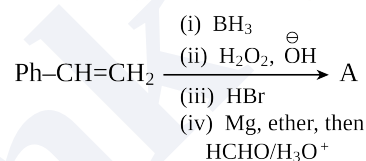
- (1) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
 (2) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)
 (3) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)
 (4) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Scan or tap for the full solution



Q.47 The final product A, formed in the following reaction sequence is:

[JEE Main 2024 (Online) 27th January Evening Shift]



- (1) Ph-CH(CH3)-CH2OH
 (2) Ph-CH(CH3)-CH3
 (3) Ph-CH2-CH2-CH2-OH
 (4) Ph-CH2-CH2-CH3

Scan or tap for the full solution



Section B (Numerical) — 4 questions

Q.48 4.7 g of phenol is heated with Zn to give product X. If this reaction goes to 60% completion then the number of moles of compound X formed will be _____ $\times 10^{-2}$. (Nearest Integer)
 (Given molar mass in g mol^{-1} : H:1, C:12, O:16)

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

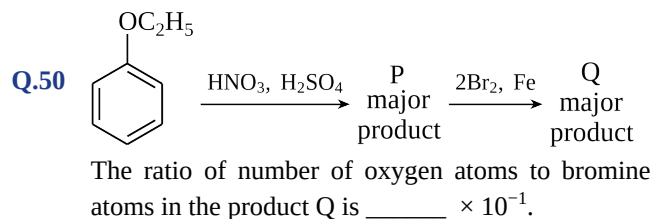
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Q.49 One mole of phenol is treated with dilute HNO3 at 298 K to give a mixture of products. The mixture is separated by steam distillation. The steam volatile compound (X) is separated. The increase in percentage of oxygen in (X) with respect to phenol is _____ $\times 10^{-1}\%$
 (Given molar mass in g mol^{-1} : H : 1, C : 12, N : 14, O : 16) [JEE Main 2026 (Online) 5th April Morning Shift]

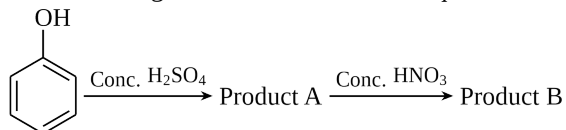
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[JEE Main 2024 (Online) 6th April Evening Shift]

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**Q.51** Consider the given chemical reaction sequence :

Total sum of oxygen atoms in Product A and Product B is _____.

[JEE Main 2024 (Online) 5th April Morning Shift]

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**ANSWER KEY****Section A (MCQ) — 47 questions**

Ques.	1	2	3	4	5
Ans.	3	4	4	1	2
Ques.	6	7	8	9	10
Ans.	1	2	1	2	4
Ques.	11	12	13	14	15
Ans.	1	2	3	3	2
Ques.	16	17	18	19	20
Ans.	1	1	2	2	2
Ques.	21	22	23	24	25
Ans.	BONUS	2	1	3	2
Ques.	26	27	28	29	30
Ans.	1	2	1	3	2
Ques.	31	32	33	34	35
Ans.	3	4	1	2	1
Ques.	36	37	38	39	40
Ans.	2	4	1	4	3
Ques.	41	42	43	44	45
Ans.	3	3	1	4	4
Ques.	46	47			
Ans.	3	3			

Section B (Numerical) — 4 questions

Ques.	48	49	50	51			
Ans.	3	175	15	14			