

Chemistry Section A

Section Id :	864351988
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511215
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 86435121280 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The **incorrect** expression among the following is :

Options :

86435170421.
$$\frac{\Delta G_{\text{System}}}{\Delta S_{\text{Total}}} = - T \text{ (at constant P)}$$

86435170422. For isothermal process $w_{\text{reversible}} = - nRT \ln \frac{V_f}{V_i}$

86435170423.
$$\ln K = \frac{\Delta H^\circ - T\Delta S^\circ}{RT}$$

86435170424.
$$K = e^{-\Delta G^\circ/RT}$$

Question Number : 32 Question Id : 86435121281 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II :

List - I (Parameter)	List - II (Unit)
(a) Cell constant	(i) $\text{S cm}^2 \text{ mol}^{-1}$
(b) Molar conductivity	(ii) Dimensionless
(c) Conductivity	(iii) m^{-1}
(d) Degree of dissociation of electrolyte	(iv) $\Omega^{-1} \text{m}^{-1}$

Choose the **most appropriate** answer from the options given below :

Options :

86435170425. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

86435170426. (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

86435170427. (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

86435170428. (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

Question Number : 33 Question Id : 86435121282 Question Type : MCQ Option Shuffling : Yes Is Qu
Correct Marks : 4 Wrong Marks : 1

Which one of the following correctly represents the order of stability of oxides, X_2O ; (X = halogen) ?

Options :

86435170429. I > Cl > Br

86435170430. Cl > I > Br

86435170431. Br > Cl > I

86435170432. Br > I > Cl

Question Number : 34 Question Id : 86435121283 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Which one of the following statements is **incorrect** ?

Options :

86435170433.

Bond dissociation enthalpy of H_2 is highest among diatomic gaseous molecules which contain a single bond.

86435170434. At around 2000 K, the dissociation of dihydrogen into its atoms is nearly 8.1%.

86435170435. Dihydrogen is produced on reacting zinc with HCl as well as NaOH.

86435170436.

Atomic hydrogen is produced when H_2 molecules at a high temperature are irradiated with UV radiation.

Question Number : 35 Question Id : 86435121284 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

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

Assertion (A) : Lithium salts are hydrated.

Reason (R) : Lithium has higher polarising power than other alkali metal group members.

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

Options :

86435170437. Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**.

86435170438. Both **(A)** and **(R)** are correct but **(R)** is NOT the correct explanation of **(A)**.

86435170439. **(A)** is correct but **(R)** is not correct.

86435170440. **(A)** is not correct but **(R)** is correct.

Question Number : 36 Question Id : 86435121285 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The number of $S=O$ bonds present in sulphurous acid, peroxodisulphuric acid, respectively are :

Options :

86435170441. 2, 4 and 3

86435170442. 1, 4 and 4

86435170443. 1, 4 and 3

86435170444. 2, 3 and 4

**Question Number : 37 Question Id : 86435121286 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1**

The Eu^{2+} ion is a strong reducing agent in spite of its ground state electronic configuration (outermost) : [Atomic number of Eu = 63]

Options :

86435170445. $4f^7$

86435170446. $4f^6$

86435170447. $4f^7 6s^2$

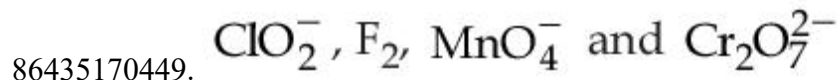
86435170448. $4f^6 6s^2$

Question Number : 38 Question Id : 86435121287 Question Type : MCQ Option Shuffling : Yes Is Qu

Correct Marks : 4 Wrong Marks : 1

In which one of the following sets all species show disproportionation reaction ?

Options :



Question Number : 39 Question Id : 86435121288 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Spin only magnetic moment in BM of $[\text{Fe}(\text{CO})_4(\text{C}_2\text{O}_4)]^+$ is :

Options :

86435170453. 1

86435170454. 1.73

86435170455. 5.92

86435170456. 0



Question Number : 40 Question Id : 86435121289 Question Type : MCQ Option Shuffling : Yes Is Qu

Correct Marks : 4 Wrong Marks : 1

The deposition of X and Y on ground surfaces is referred as wet and dry depositions, respectively. X and Y are :

Options :

86435170457. X = Ammonium salts , Y = SO₂

86435170458. X = CO₂ , Y = SO₂

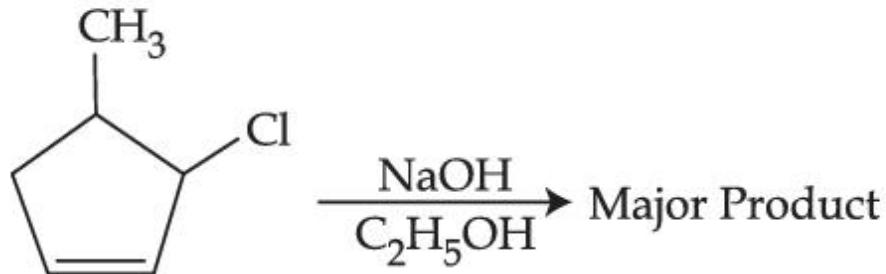
86435170459. X = SO₂ , Y = Ammonium salts

86435170460. X = Ammonium salts , Y = CO₂

Question Number : 41 Question Id : 86435121290 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

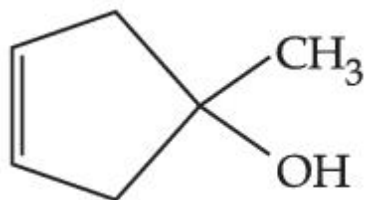
Correct Marks : 4 Wrong Marks : 1

The major product of the following reaction is :

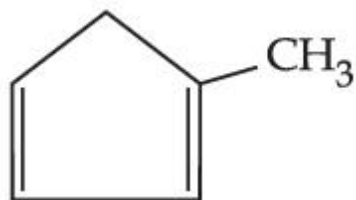


Options :

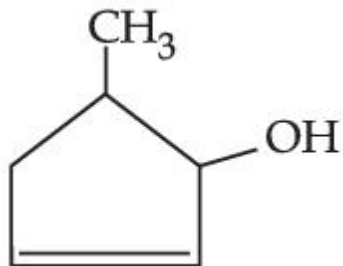
86435170461.



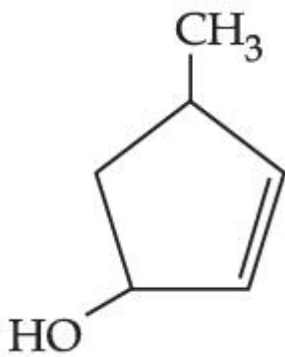
86435170462.



86435170463.

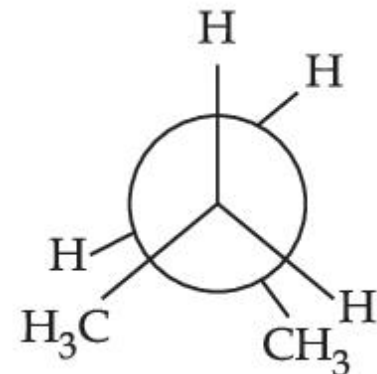
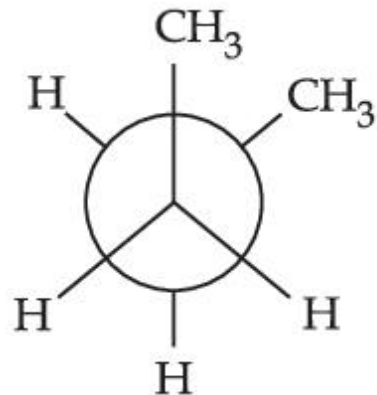
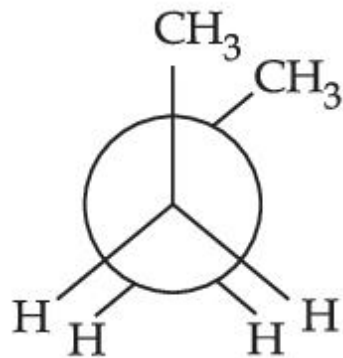
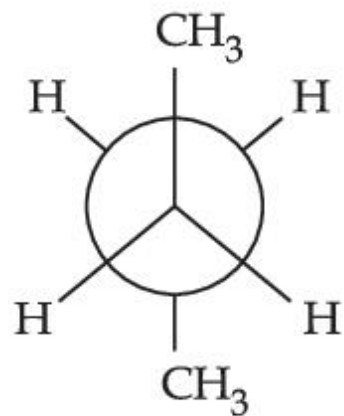


86435170464.



Question Number : 42 Question Id : 86435121291 Question Type : MCQ Option Shuffling : Yes Is Qu
Correct Marks : 4 Wrong Marks : 1

Arrange the following conformational isomers of n-butane in order of their increasing potential energy :



Options :

86435170465. I < IV < III < II

86435170466. II < III < IV < I

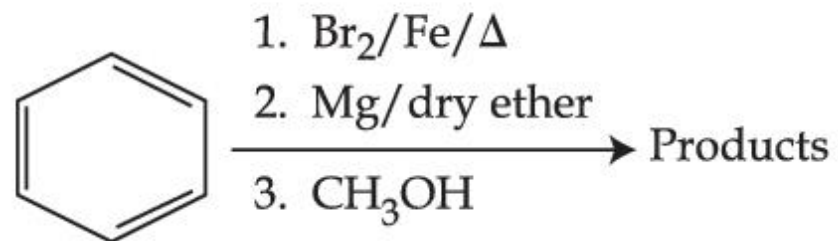
86435170467. I < III < IV < II

86435170468. II < IV < III < I

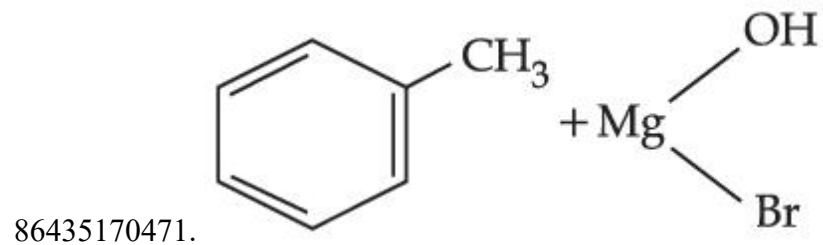
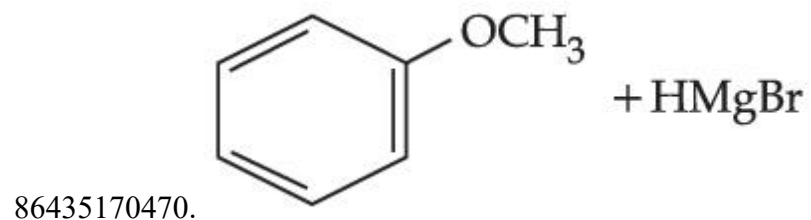
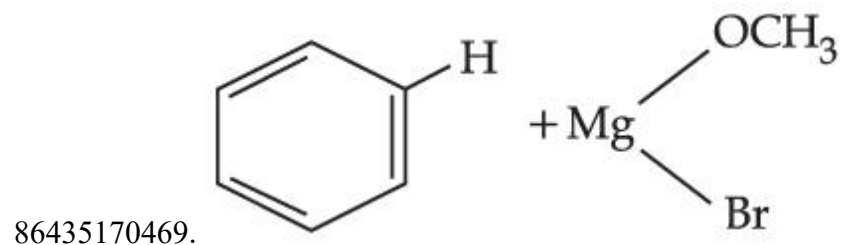
Question Number : 43 Question Id : 86435121292 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

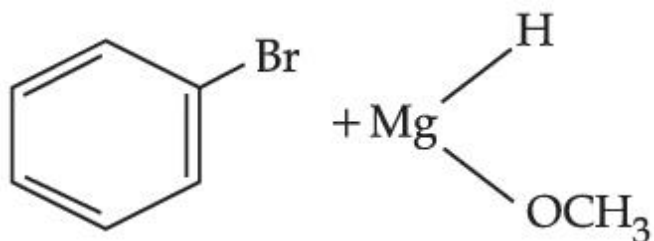
Correct Marks : 4 Wrong Marks : 1

For the following sequence of reactions, the correct products are :



Options :

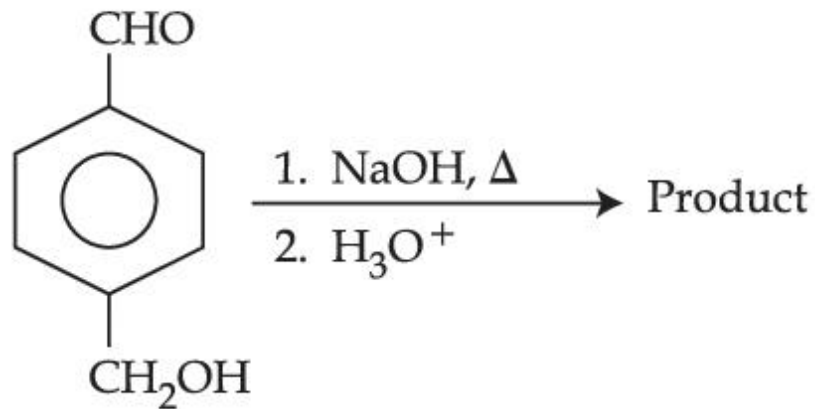




86435170472.

Question Number : 44 Question Id : 86435121293 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

For the reaction given below :



The compound which is **not** formed as a product in the reaction is a :

Options :

86435170473. diol

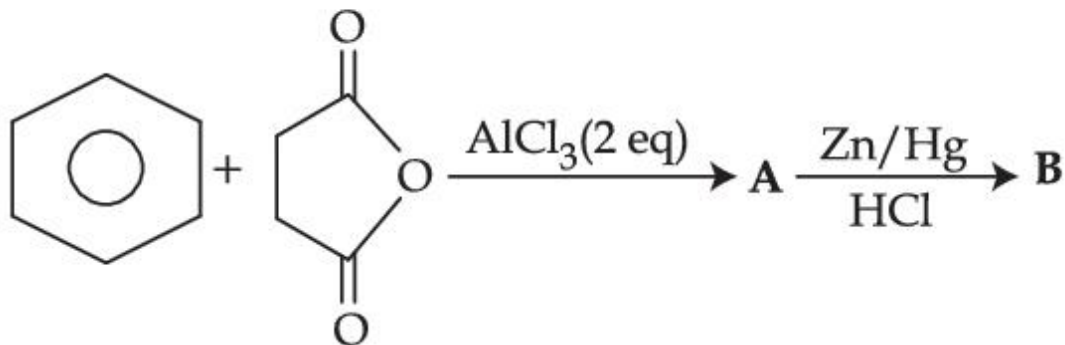
86435170474. dicarboxylic acid

86435170475. compound with both alcohol and acid functional groups

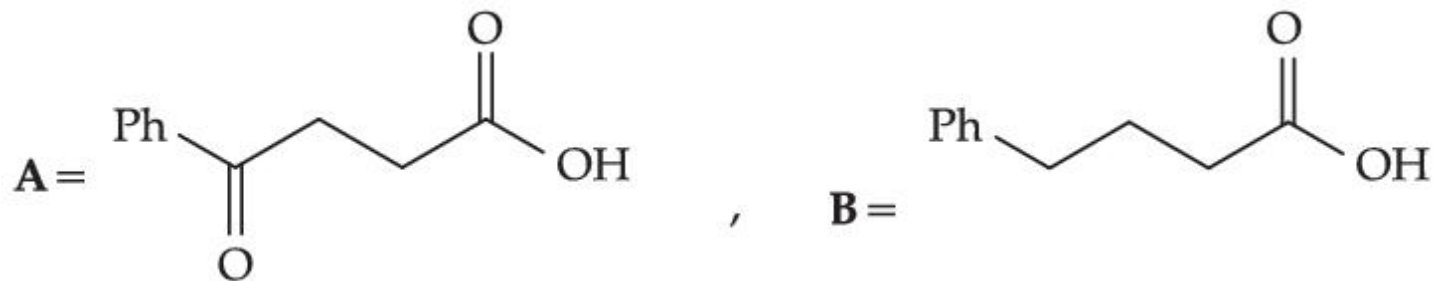
86435170476. monocarboxylic acid

Question Number : 45 Question Id : 86435121294 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

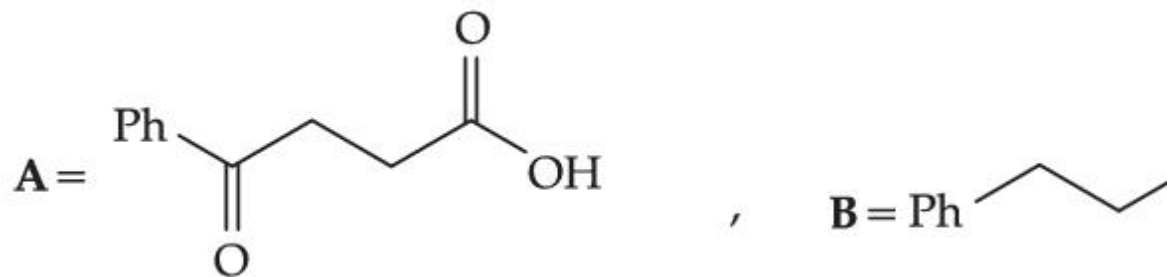
The structures of **A** and **B** formed in the following reaction are : [Ph = $-\text{C}_6\text{H}_5$]



Options :

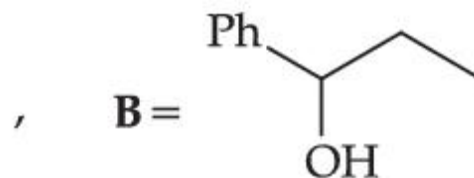
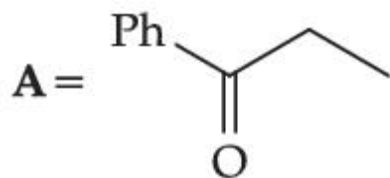


86435170477.

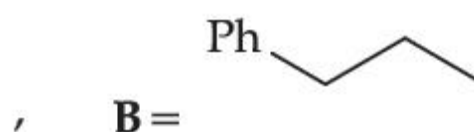
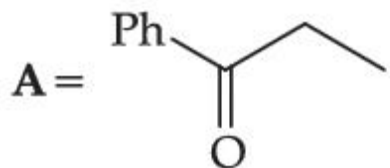


86435170478.

86435170479.

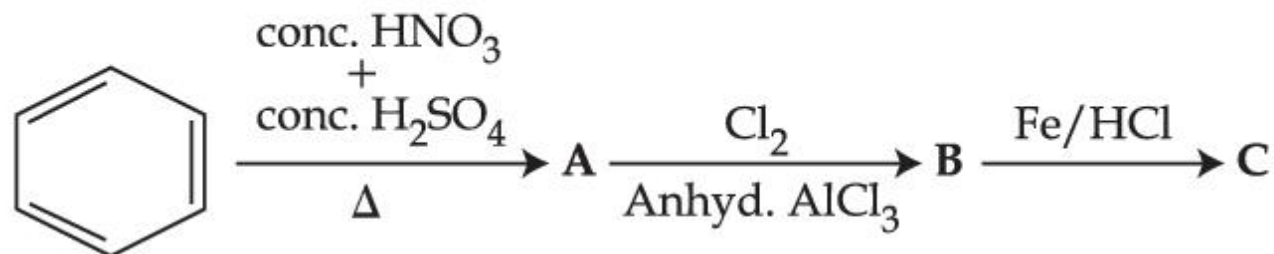


86435170480.

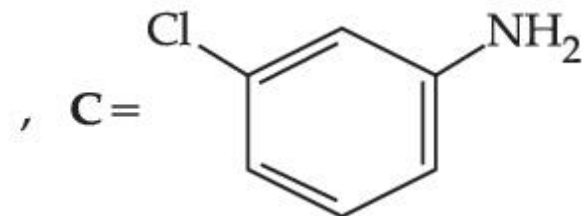
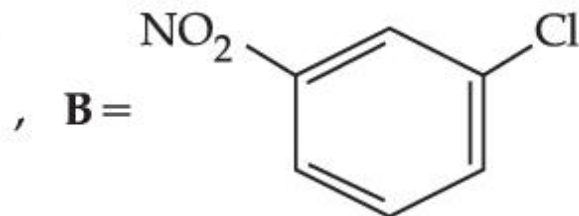
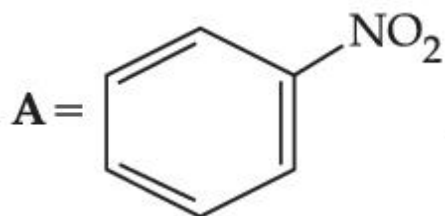


Question Number : 46 Question Id : 86435121295 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

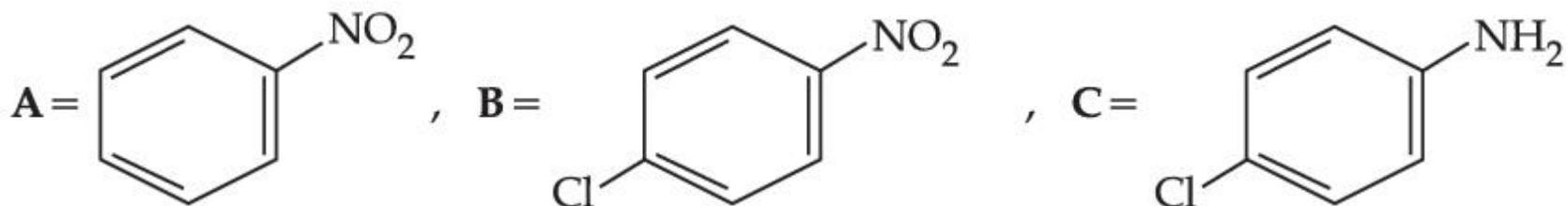
Identify correct A, B and C in the reaction sequence given below :



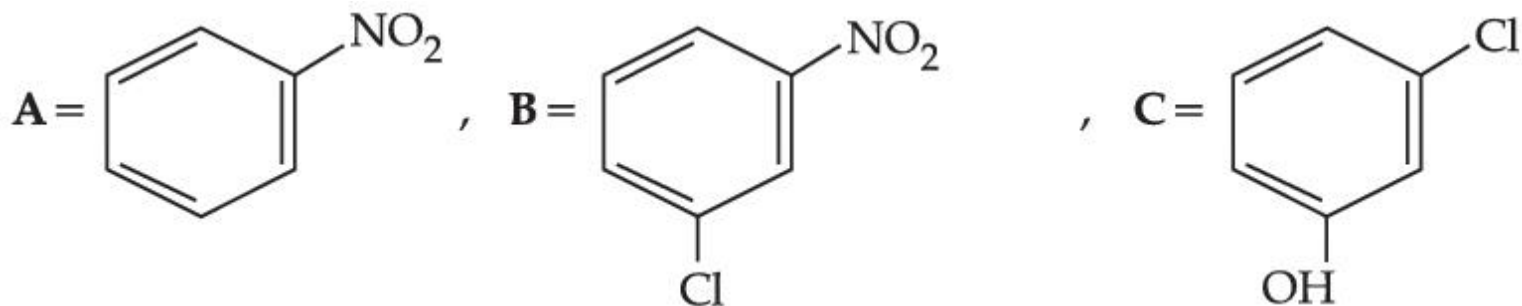
Options :



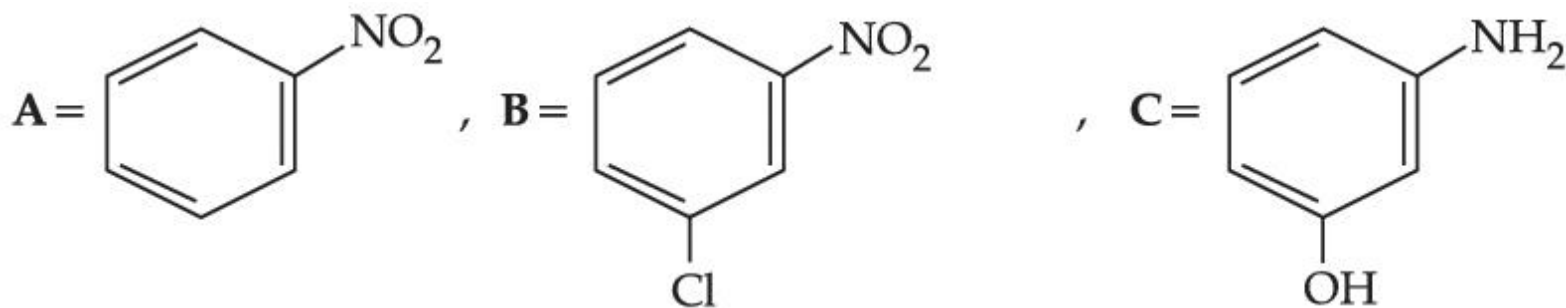
86435170481.



86435170482.



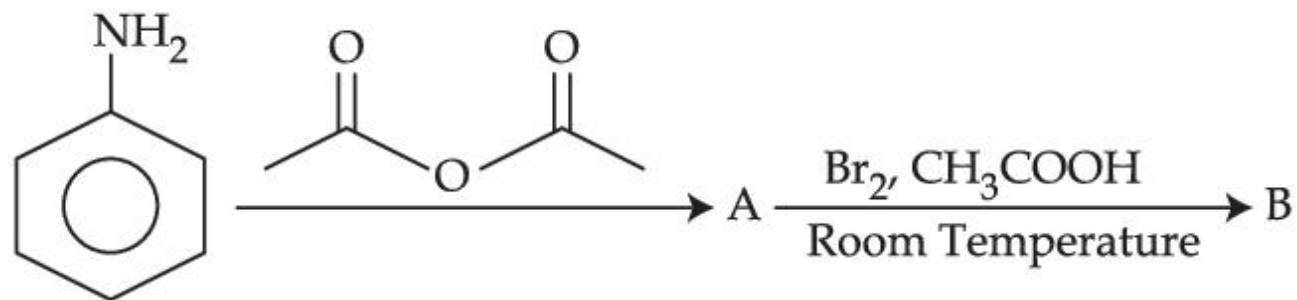
86435170483.



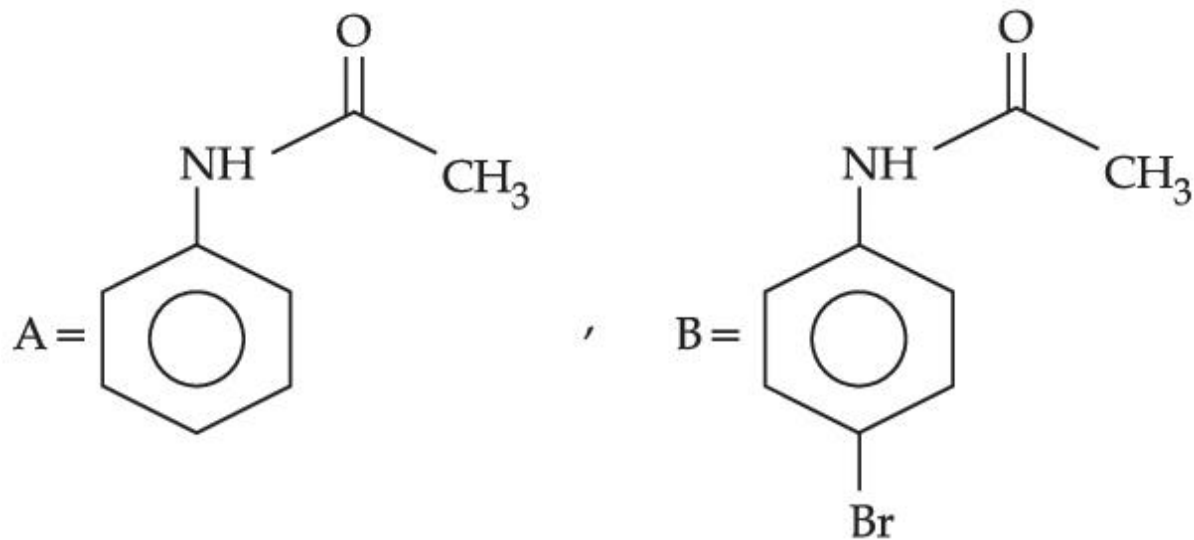
86435170484.

Question Number : 47 Question Id : 86435121296 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

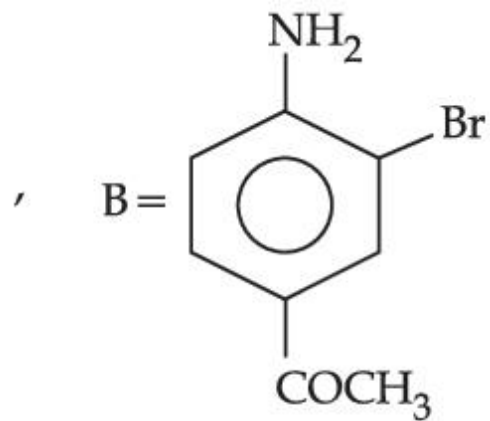
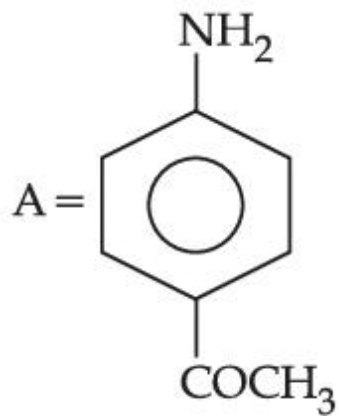
The major products A and B formed in the following reaction sequence are :



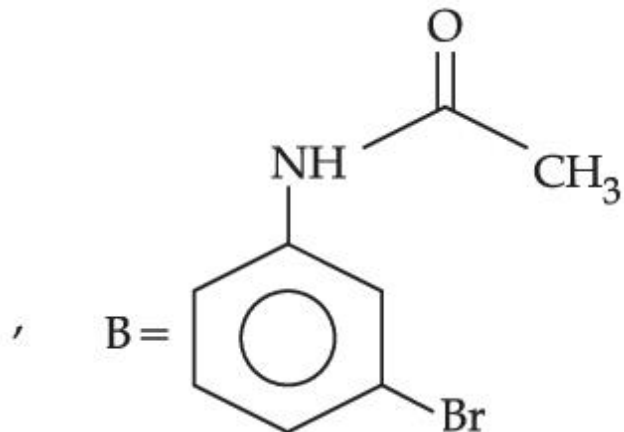
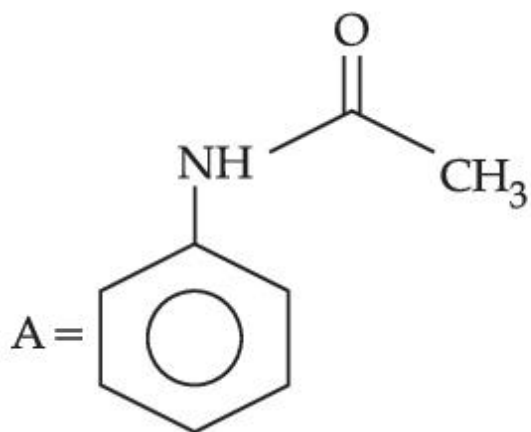
Options :



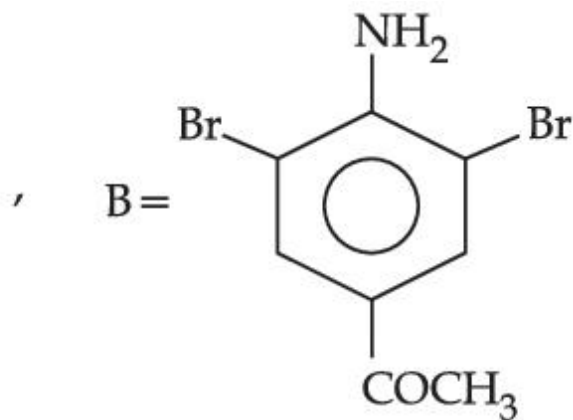
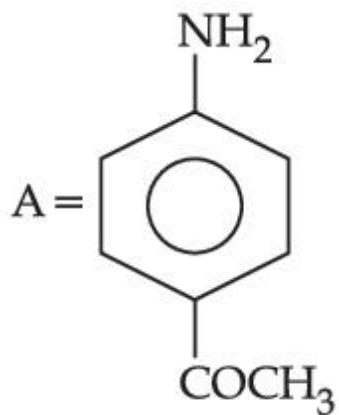
86435170485.



86435170486.



86435170487.



86435170488.

Question Number : 48 Question Id : 86435121297 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which among the following is not a polyester ?

Options :

86435170489. Glyptal

86435170490. Novolac

86435170491. Dacron

86435170492. PHBV

Question Number : 49 Question Id : 86435121298 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which of the following is NOT an example of fibrous protein ?

Options :

86435170493. Keratin

86435170494. Albumin

86435170495. Myosin

86435170496. Collagen

Question Number : 50 Question Id : 86435121299 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II :

List - I (Metal Ion)	List - II (Group in Qualitative analysis)
(a) Mn^{2+}	(i) Group - III
(b) As^{3+}	(ii) Group - IIA
(c) Cu^{2+}	(iii) Group - IV
(d) Al^{3+}	(iv) Group - IIB

Choose the most appropriate answer from the options given below :

Options :

86435170497. (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

86435170498. (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

86435170499. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

86435170500. (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)

Chemistry Section B

Section Id :

864351989

Section Number :

4

Section type :

Online

Mandatory or Optional :

Mandatory



Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511216
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435121300 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Sodium oxide reacts with water to produce sodium hydroxide. 20.0 g of sodium oxide is dissolved in 500 mL of water. Neglecting the change in volume, the concentration of the resulting NaOH solution is _____ $\times 10^{-1}$ M. (Nearest integer)

[Atomic mass : Na = 23.0, O = 16.0, H = 1.0]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 52 Question Id : 86435121301 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The empirical formula for a compound with a cubic close packed arrangement of anions and with cations occupying all the octahedral sites in A_xB . The value of x is _____ .
(Integer answer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 Question Id : 86435121302 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The value of magnetic quantum number of the outermost electron of Zn^+ ion is _____.
(Integer answer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 54 Question Id : 86435121303 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

According to molecular orbital theory, the number of unpaired electron(s) in O_2^{2-} is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 55 Question Id : 86435121304 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

1.22 g of an organic acid is separately dissolved in 100 g of benzene ($K_b = 2.6 \text{ K kg mol}^{-1}$) and 100 g of acetone ($K_b = 1.7 \text{ K kg mol}^{-1}$). The acid is known to dimerize in benzene but remain as a monomer in acetone. The boiling point of the solution in acetone increases by 0.17°C . The increase in boiling point of solution in benzene in $^\circ\text{C}$ is $x \times 10^{-2}$. The value of x is _____. (Nearest integer)

[Atomic mass : C = 12.0, H = 1.0, O = 16.0]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 56 Question Id : 86435121305 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The pH of a solution obtained by mixing 50 mL of 1 M HCl and 30 mL of 1 M NaOH is $x \times 10^{-4}$. The value of x is _____. (Nearest integer)

[log 2.5 = 0.3979]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 57 Question Id : 86435121306 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

For the reaction $A \rightarrow B$, the rate constant k (in s^{-1}) is given by

$$\log_{10} k = 20.35 - \frac{(2.47 \times 10^3)}{T}$$

The energy of activation in kJ mol^{-1} is _____. (Nearest integer)

[Given : $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 58 Question Id : 86435121307 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

CH_4 is adsorbed on 1 g charcoal at 0°C following the Freundlich adsorption isotherm.

10.0 mL of CH_4 is adsorbed at 100 mm of Hg, whereas 15.0 mL is adsorbed at 200 mm of Hg.

The volume of CH_4 adsorbed at 300 mm of Hg is 10^x mL. The value of x is _____ $\times 10^{-2}$.

(Nearest integer)

[Use $\log_{10}2 = 0.3010$, $\log_{10}3 = 0.4771$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 59 Question Id : 86435121308 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

In the electrolytic refining of blister copper, the total number of main impurities, from the following, removed as anode mud is _____.

Pb, Sb, Se, Te, Ru, Ag, Au and Pt

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

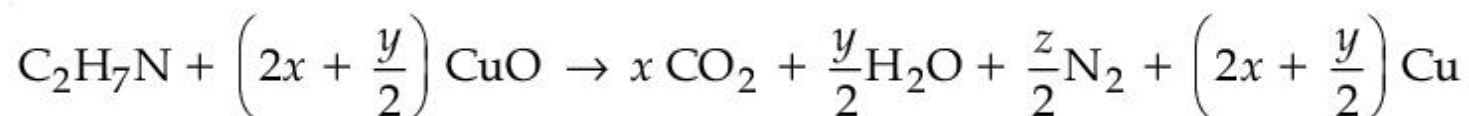
Possible Answers :

1

Question Number : 60 Question Id : 86435121309 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The transformation occurring in Duma's method is given below



The value of y is _____. (Integer answer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1