Chemistry Section A

Section Id :	864351946
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 :	8643511173
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 86435120650 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Lyophilic sols are more stable than lyophobic sols because,

Options :

86435168531. the colloidal particles have positive charge.

86435168532. the colloidal particles have no charge.

86435168533. the colloidal particles are solvated.

86435168534. there is a strong electrostatic repulsion between the negatively charged collc

Question Number : 32 Question Id : 86435120651 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

The correct order of ionic radii for the ions, P^{3-}, S^{2-}, Ca^{2+}, K^{+}, Cl^{-} is :

Options :

86435168535. $K^{+} > Ca^{2+} > P^{3-} > S^{2-} > Cl^{-}$

86435168536. $P^{3-} > S^{2-} > Cl^{-} > K^{+} > Ca^{2+}$

86435168537. $P^{3-} > S^{2-} > Cl^{-} > Ca^{2+} > K^{+}$

86435168538. $Cl^{-} > S^{2-} > P^{3-} > Ca^{2+} > K^{+}$

Question Number : 33 Question Id : 86435120652 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

	List - I (Name of ore/mineral)		**List - II (Chemical formula)**
(a)	Calamine	(i)	ZnS
(b)	Malachite	(ii)	$FeCO_3$
(c)	Siderite	(iii)	$ZnCO_3$
(d)	Sphalerite	(iv)	$CuCO_3 \cdot Cu(OH)_2$

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

Options :

86435168539. (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

86435168540. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

86435168541. (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

86435168542. (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

Question Number : 34 Question Id : 86435120653 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

The oxide that gives H_2O_2 most readily on treatment with H_2O is :

Options :

86435168543. PbO_2

86435168544. $BaO_2 \cdot 8H_2O$

86435168545. Na_2O_2

86435168546. SnO_2

Question Number : 35 Question Id : 86435120654 Question Type : MCQ Option Shuffling : Yes Is Question Ma
Correct Marks : 4 Wrong Marks : 1

Choose the **correct** statement from the following :

Options :

86435168547. Among the alkali metal halides, LiF is least soluble in water.

86435168548. LiF has least negative standard enthalpy of formation among alkali metal fluorides.

86435168549. The low solubility of CsI in water is due to its high lattice enthalpy.

86435168550. The standard enthalpy of formation for alkali metal bromides becomes less negative on descending the group.

Question Number : 36 Question Id : 86435120655 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which one of the following is formed (mainly) when red phosphorus is heated in a sealed tube at 803 K ?

Options :

86435168551. β-Black phosphorus

86435168552. α-Black phosphorus

86435168553. White phosphorus

86435168554. Yellow phosphorus

Question Number : 37 Question Id : 86435120656 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Potassium permanganate on heating at 513 K gives a product which is :

Options :

86435168555. paramagnetic and colourless

86435168556. diamagnetic and colourless

86435168557. paramagnetic and green

86435168558. diamagnetic and green

Question Number : 38 Question Id : 86435120657 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which one of the following is used to remove most of plutonium from spent nuclear fuel ?

Options :

86435168559. I_2O_5

86435168560. BrO_3

86435168561. ClF_3

86435168562. O_2F_2

Question Number : 39 Question Id : 86435120658 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

In stratosphere most of the ozone formation is assisted by :

Options :

86435168563. γ-rays.

86435168564. visible radiations.

86435168565. ultraviolet radiation.

86435168566. cosmic rays.

Question Number : 40 Question Id : 86435120659 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which one of the following tests used for the identification of functional groups in organic compounds does not use copper reagent ?

Options :

86435168567. Biuret test for peptide bond

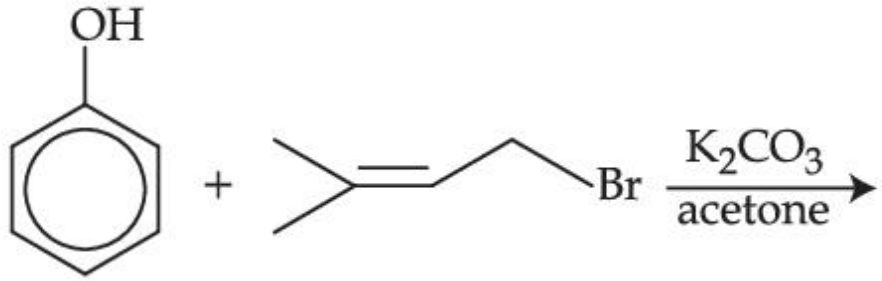
86435168568. Barfoed's test

86435168569. Seliwanoff's test

86435168570. Benedict's test

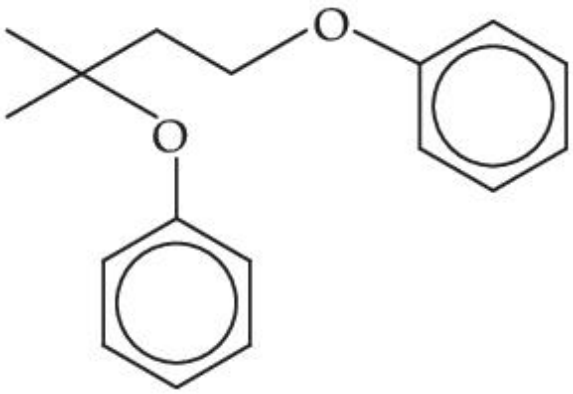
Question Number : 41 Question Id : 86435120660 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

The major product of the following reaction, if it occurs by S_N2 mechanism is :

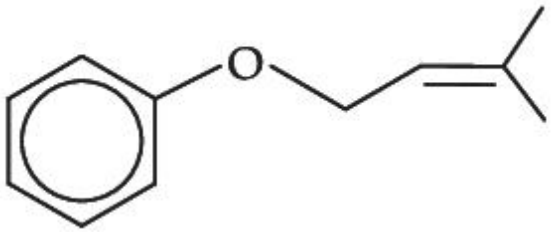


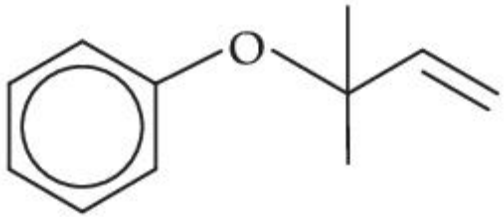
Options :

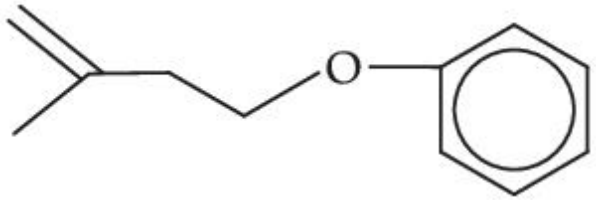
86435168571.



86435168572.



86435168573. 

86435168574. 

Question Number : 42 Question Id : 86435120661 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which one of the following reactions will **not** yield propionic acid ?

Options :

86435168575. $CH_3CH_2CH_3 + KMnO_4(Heat), OH^- / H_3O^+$

86435168576. $CH_3CH_2CCl_3 + OH^- / H_3O^+$

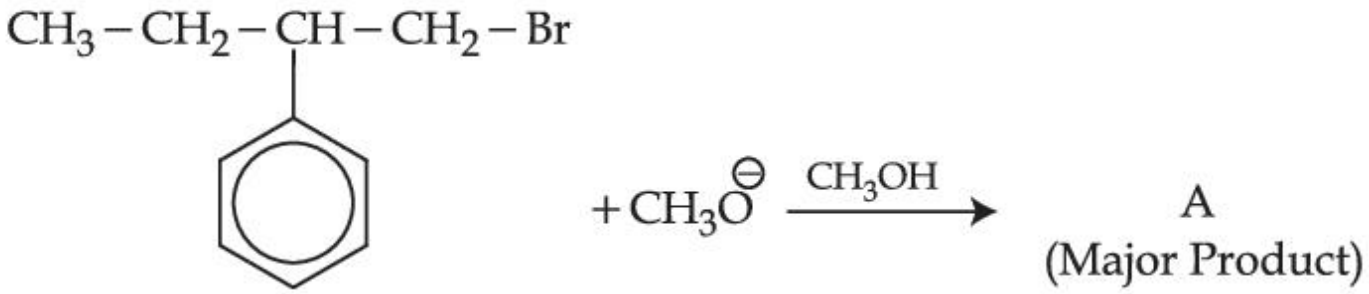
86435168577. $CH_3CH_2COCH_3 + OI^- / H_3O^+$

86435168578. $CH_3CH_2CH_2Br + Mg, CO_2$ dry ether$/H_3O^+$

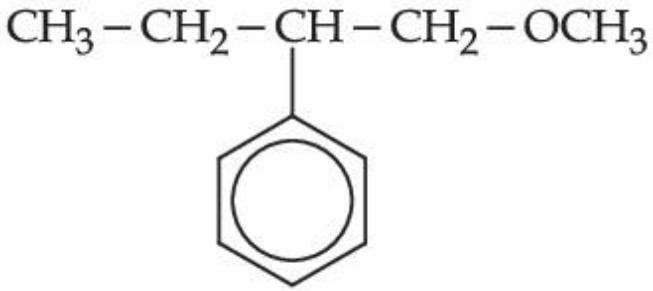
Question Number : 43 Question Id : 86435120662 Question Type : MCQ Option Shuffling : Yes Is Question Ma

Correct Marks : 4 Wrong Marks : 1

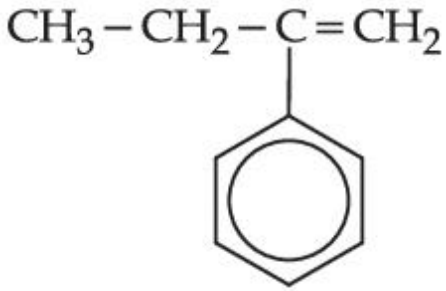
The major product (A) formed in the reaction given below is :



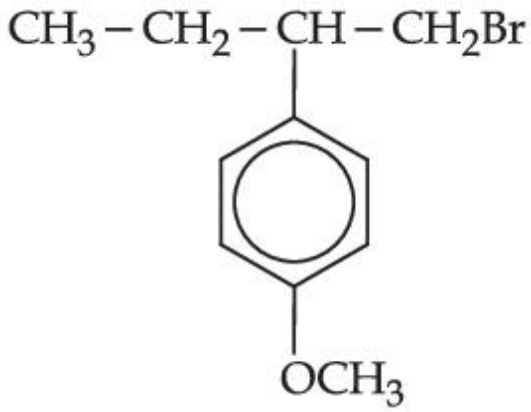
Options :



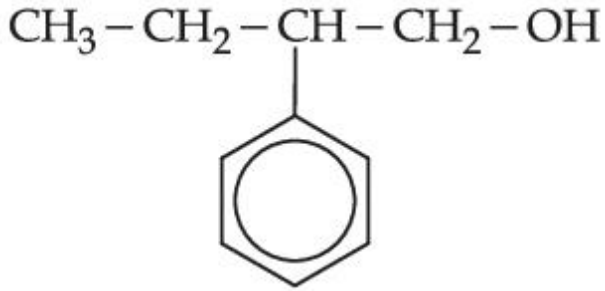
86435168579.



86435168580.



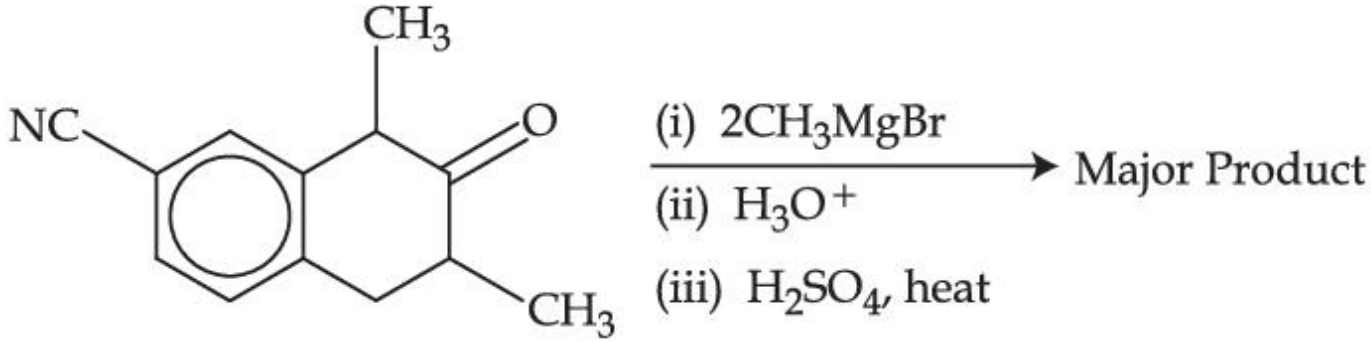
86435168581.



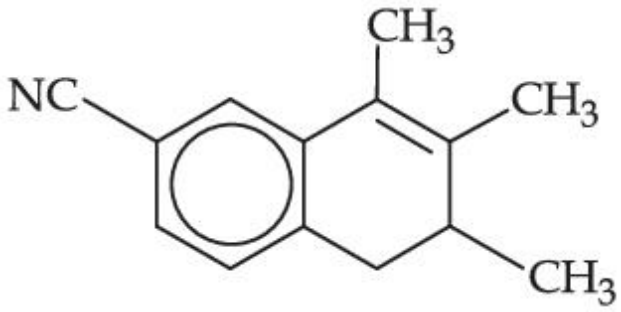
86435168582.

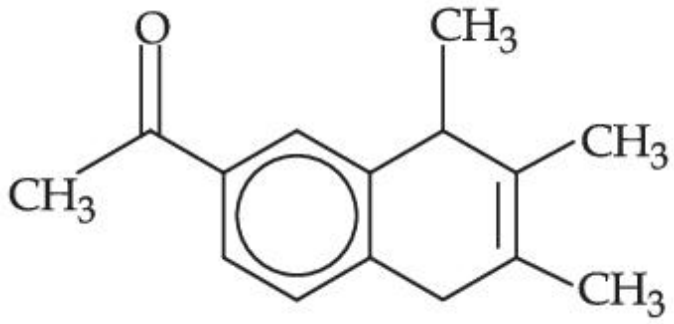
Question Number : 44 Question Id : 86435120663 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

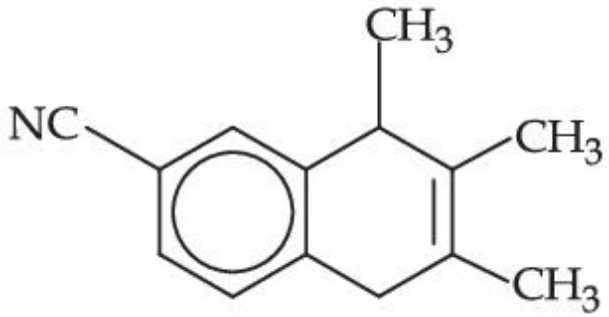
Which one of the following is the major product of the given reaction ?

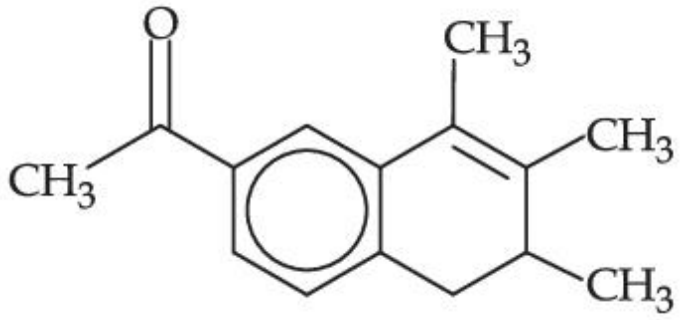


Options :

86435168583. 

86435168584. 

86435168585. 

86435168586. 

Question Number : 45 Question Id : 86435120664 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : Ethyl pent-4-yn-oate on reaction with CH_3MgBr gives a 3°-alcohol.

Statement II : In this reaction one mole of ethyl pent-4-yn-oate utilizes two moles of CH_3MgBr.

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

Options :

86435168587. Both **Statement I** and **Statement II** are true

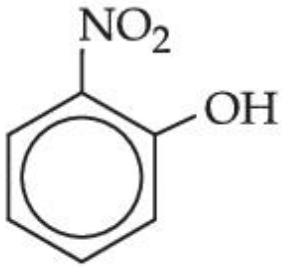
86435168588. Both **Statement I** and **Statement II** are false

86435168589. **Statement I** is true but **Statement II** is false

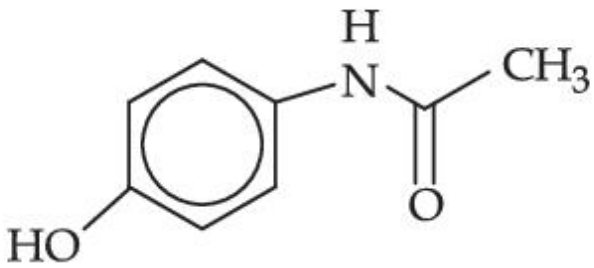
86435168590. **Statement I** is false but **Statement II** is true

Question Number : 46 Question Id : 86435120665 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

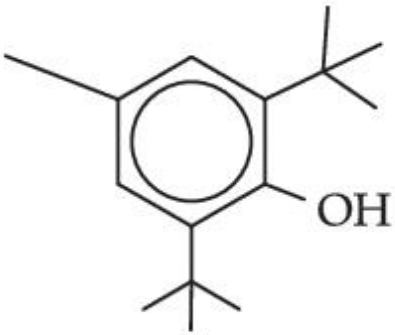
The compound/s which will show significant intermolecular H-bonding is/are :



(a)



(b)



(c)

Options :

86435168591. (a), (b) and (c)

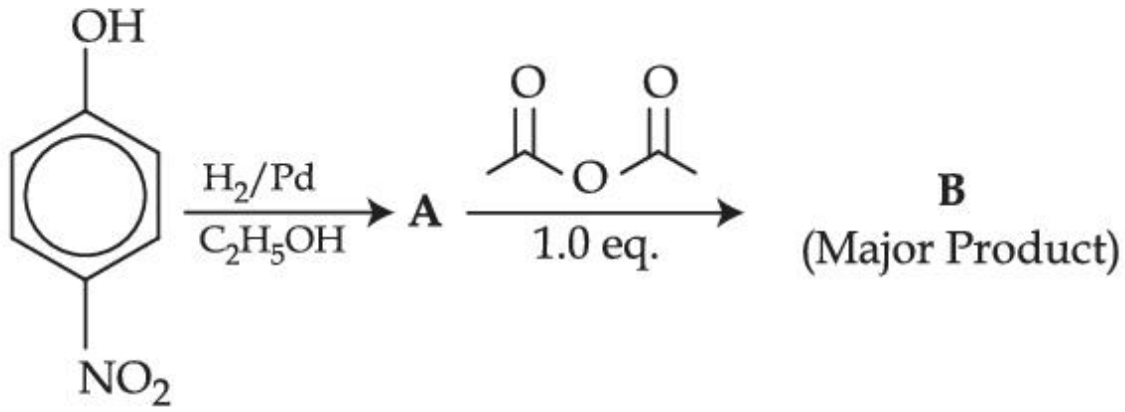
86435168592. (a) and (b) only

86435168593. (b) only

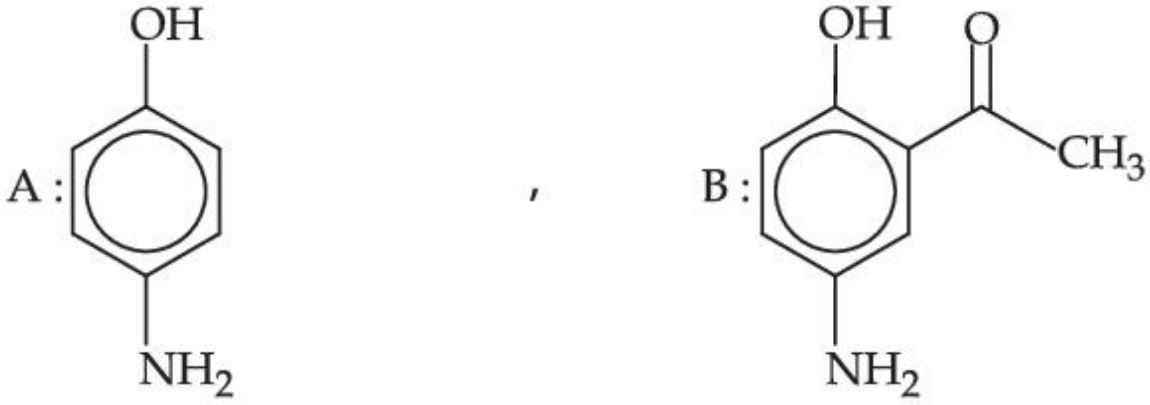
86435168594. (c) only

Question Number : 47 Question Id : 86435120666 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

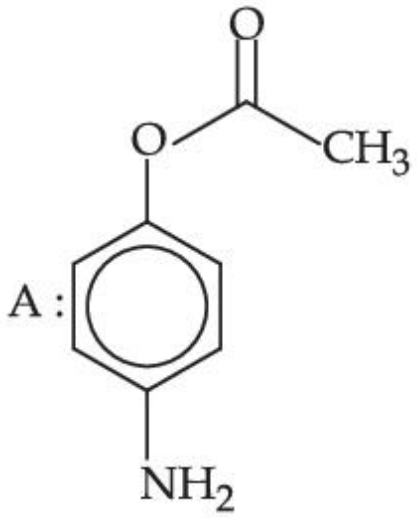
The correct structures of **A** and **B** formed in the following reactions are :



Options :



86435168595.



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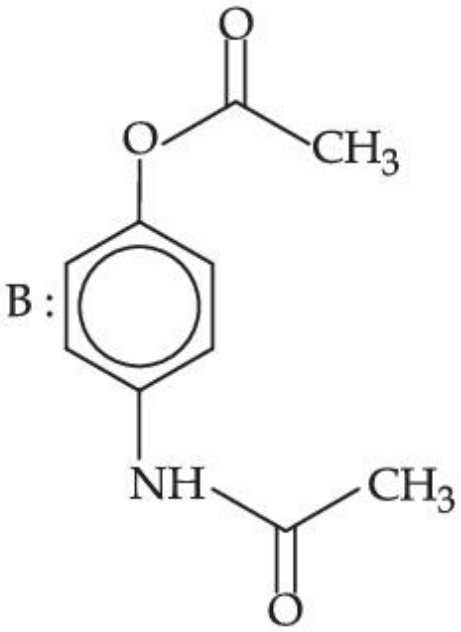
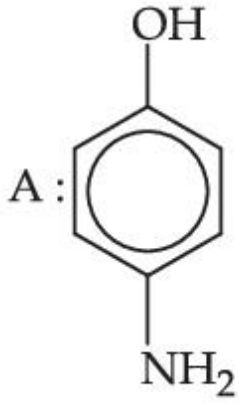


86435168596.



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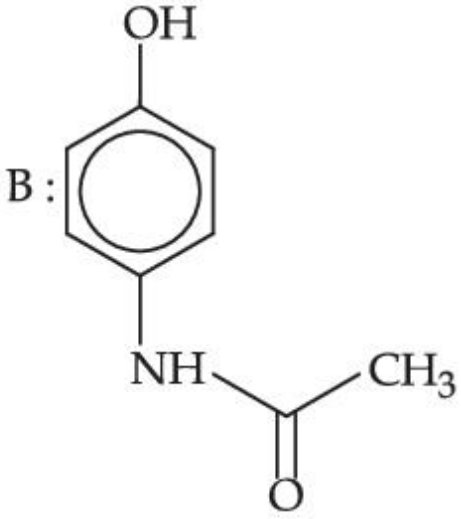
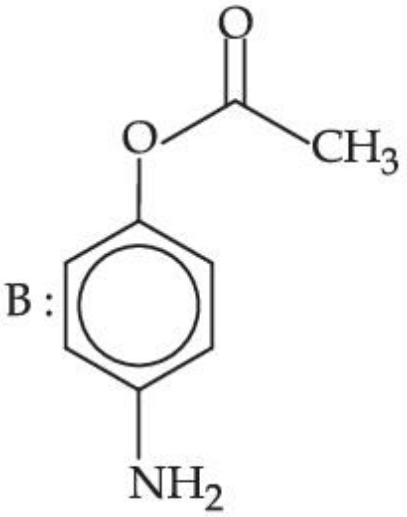


86435168597.

86435168598.

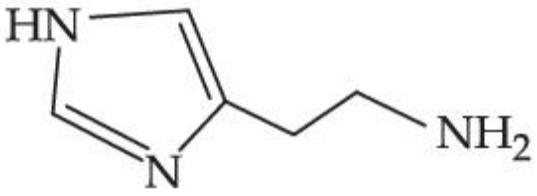
A : 

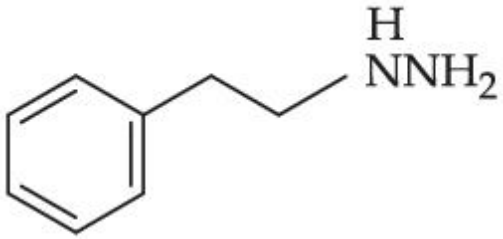
, B : 

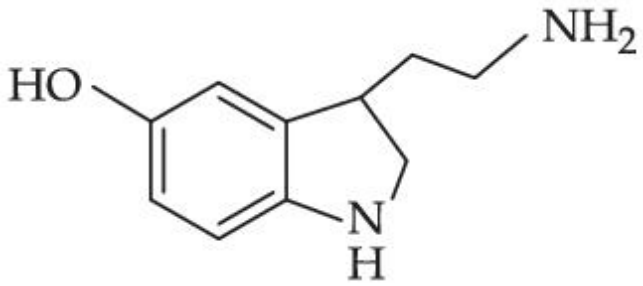
Question Number : 48 Question Id : 86435120667 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

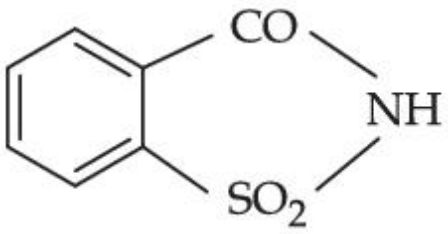
Which one of the following chemicals is responsible for the production of HCl in the stomach leading to irritation and pain ?

Options :

86435168599. 

86435168600. 

86435168601. 

86435168602. 

Question Number : 49 Question Id : 86435120668 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Hydrolysis of sucrose gives :

Options :

86435168603. α-D-(−)-Glucose and β-D-(−)-Fructose

86435168604. α-D-(+)-Glucose and β-D-(−)-Fructose

86435168605. α-D-(+)-Glucose and α-D-(−)-Fructose

86435168606. α-D-(−)-Glucose and α-D-(+)-Fructose

Question Number : 50 Question Id : 86435120669 Question Type : MCQ Option Shuffling : Yes Is Question Ma

Correct Marks : 4 Wrong Marks : 1

The addition of dilute NaOH to Cr^{3+} salt solution will give :

Options :

86435168607. a solution of $[Cr(OH)_4]^-$

86435168608. precipitate of $Cr(OH)_3$

86435168609. precipitate of $Cr_2O_3(H_2O)_n$

86435168610. precipitate of $[Cr(OH)_6]^{3-}$

Chemistry Section B

Section Id :	864351947
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 :	8643511174
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435120670 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

100 g of propane is completely reacted with 1000 g of oxygen. The mole fraction of carbon dioxide in the resulting mixture is $x \times 10^{-2}$. The value of x is _____.

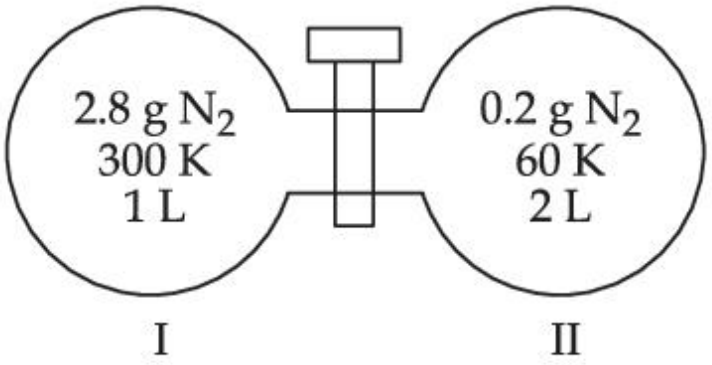
(Nearest integer)

[Atomic weight : H = 1.008; C = 12.00; O = 16.00]

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 : 86435120671 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Two flasks I and II shown below are connected by a valve of negligible volume.



When the valve is opened, the final pressure of the system in bar is $x \times 10^{-2}$. The value of x is _____. (Integer answer)

[Assume - Ideal gas; 1 bar = 10^5 Pa; Molar mass of N_2 = 28.0 g mol^{-1}; R =]

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 : 86435120672 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The number of photons emitted by a monochromatic (single frequency) infrared range finder of power 1 mW and wavelength of 1000 nm, in 0.1 second is $x \times 10^{13}$. The value of x is _____. (Nearest integer)

$(h = 6.63 \times 10^{-34}$ Js, $c = 3.00 \times 10^{8}$ ms$^{-1})$

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 : 86435120673 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The number of species having non-pyramidal shape among the following is _____.

(A) SO_3

(B) NO_3^-

(C) PCl_3

(D) CO_3^{2-}

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 : 86435120674 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Data given for the following reaction is as follows :

$$FeO_{(s)} + C_{(graphite)} \longrightarrow Fe_{(s)} + CO_{(g)}$$

Substance	$\Delta_f H^\circ$ (kJ mol^{-1})	ΔS° (J mol^{-1} K^{-1})
$FeO_{(s)}$	– 266.3	57.49
$C_{(graphite)}$	0	5.74
$Fe_{(s)}$	0	27.28
$CO_{(g)}$	– 110.5	197.6

The minimum temperature in K at which the reaction becomes spontaneous 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 : 56 Question Id : 86435120675 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

40 g of glucose (Molar mass = 180) is mixed with 200 mL of water. The freezing point of solution is _____ K. (Nearest integer)

[Given : $K_f = 1.86$ K kg mol^{-1}; Density of water = 1.00 g cm^{-3} ; Freezing point of water = 273.15 K]

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 : 86435120676 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

When 5.1 g of solid NH_4HS is introduced into a two litre evacuated flask at 27°C, 20% of the solid decomposes into gaseous ammonia and hydrogen sulphide. The K_p for the reaction at 27°C is $x \times 10^{-2}$. The value of x is _____. (Integer answer)

[Given R = 0.082 L atm K^{-1} 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 : 86435120677 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The resistance of a conductivity cell with cell constant 1.14 cm^{-1}, containing 0.001 M KCl at 298 K is 1500 Ω . The molar conductivity of 0.001 M KCl solution at 298 K in S cm^2 mol^{-1} 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 : 59 Question Id : 86435120678 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The first order rate constant for the decomposition of $CaCO_3$ at 700 K is 6.36×10^{-3} s^{-1} and activation energy is 209 kJ mol^{-1}. Its rate constant (in s^{-1}) at 600 K is $x \times 10^{-6}$. The value of x is _____. (Nearest integer)

[Given $R = 8.31$ J K^{-1} mol^{-1} ; $\log 6.36 \times 10^{-3} = -2.19$, $10^{-4.79} = 1.62 \times 10^{-5}$]

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 : 86435120679 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The number of optical isomers possible for $[Cr(C_2O_4)_3]^{3-}$ is _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1