

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	7081911228
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 70819121124 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List-I with List-II.

List-I (Molecule)	List-II (Bond order)
(a) Ne ₂	(i) 1
(b) N ₂	(ii) 2
(c) F ₂	(iii) 0
(d) O ₂	(iv) 3

Choose the correct answer from the options given below :

Options :

70819168521. (a) → (i), (b) → (ii), (c) → (iii), (d) → (iv)

70819168522. (a) → (iv), (b) → (iii), (c) → (ii), (d) → (i)

70819168523. (a) → (ii), (b) → (i), (c) → (iv), (d) → (iii)

70819168524. (a) → (iii), (b) → (iv), (c) → (i), (d) → (ii)

Question Number : 32 Question Id : 70819121125 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The nature of charge on resulting colloidal particles when FeCl_3 is added to excess of hot water is :

Options :

70819168525. positive

70819168526. negative

70819168527. neutral

70819168528. sometimes positive and sometimes negative

Question Number : 33 Question Id : 70819121126 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The correct order of electron gain enthalpy is :

Options :

70819168529. $\text{O} > \text{S} > \text{Se} > \text{Te}$

70819168530. $\text{Te} > \text{Se} > \text{S} > \text{O}$

70819168531. $\text{S} > \text{O} > \text{Se} > \text{Te}$

70819168532. $\text{S} > \text{Se} > \text{Te} > \text{O}$

Question Number : 34 Question Id : 70819121127 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List-I with List-II.

List-I	List-II
(a) Siderite	(i) Cu
(b) Calamine	(ii) Ca
(c) Malachite	(iii) Fe
(d) Cryolite	(iv) Al
	(v) Zn

Choose the correct answer from the options given below :

Options :

70819168533. (a) → (i), (b) → (ii), (c) → (v), (d) → (iii)

70819168534. (a) → (iii), (b) → (v), (c) → (i), (d) → (iv)

70819168535. (a) → (i), (b) → (ii), (c) → (iii), (d) → (iv)

70819168536. (a) → (iii), (b) → (i), (c) → (v), (d) → (ii)

Question Number : 35 Question Id : 70819121128 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following forms of hydrogen emits low energy β^- particles ?

Options :

70819168537. Proton H^+

70819168538. Protium 1_1H

70819168539. Deuterium 2_1H

70819168540. Tritium 3_1H

Question Number : 36 Question Id : 70819121129 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List-I with List-II.

List-I	List-II
(a) Sodium Carbonate	(i) Deacon
(b) Titanium	(ii) Castner-Kellner
(c) Chlorine	(iii) van-Arkel
(d) Sodium hydroxide	(iv) Solvay

Choose the correct answer from the options given below :

Options :

70819168541. (a) → (iv), (b) → (iii), (c) → (i), (d) → (ii)

70819168542. (a) → (iv), (b) → (i), (c) → (ii), (d) → (iii)

70819168543. (a) → (i), (b) → (iii), (c) → (iv), (d) → (ii)

70819168544. (a) → (iii), (b) → (ii), (c) → (i), (d) → (iv)

Question Number : 37 Question Id : 70819121130 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which pair of oxides is acidic in nature ?

Options :

70819168545. B_2O_3 , SiO_2

70819168546. B_2O_3 , CaO

70819168547. N_2O , BaO

70819168548. CaO , SiO_2

Question Number : 38 Question Id : 70819121131 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 : In TlI_3 , isomorphous to CsI_3 , the metal is present in +1 oxidation state.

Reason R : Tl metal has fourteen *f* electrons in its electronic configuration.

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

Options :

70819168549. Both A and R are correct and R is the correct explanation of A

70819168550. Both A and R are correct but R is NOT the correct explanation of A

70819168551. A is correct but R is not correct

70819168552. A is not correct but R is correct

Question Number : 39 Question Id : 70819121132 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Calgon is used for water treatment. Which of the following statement is NOT true about Calgon ?

Options :

70819168553. Calgon contains the 2nd most abundant element by weight in the Earth's crust.

70819168554. It is polymeric compound and is water soluble.

70819168555. It is also known as Graham's salt.

70819168556. It doesnot remove Ca^{2+} ion by precipitation.

Question Number : 40 Question Id : 70819121133 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Ceric ammonium nitrate and $\text{CHCl}_3/\text{alc. KOH}$ are used for the identification of functional groups present in _____ and _____ respectively.

Options :

70819168557. alcohol, amine

70819168558. amine, alcohol

70819168559. alcohol, phenol

70819168560. amine, phenol

Question Number : 41 Question Id : 70819121134 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In $\overset{1}{\text{C}}\text{H}_2 = \overset{2}{\text{C}} = \overset{3}{\text{C}}\text{H} - \overset{4}{\text{C}}\text{H}_3$ molecule, the hybridization of carbon 1, 2, 3 and 4 respectively, are :

Options :

70819168561. sp^2, sp^2, sp^2, sp^3

70819168562. sp^3, sp, sp^3, sp^3

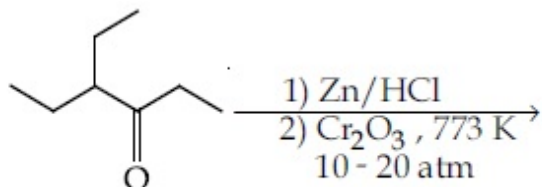
70819168563. sp^2, sp, sp^2, sp^3

70819168564. sp^2, sp^3, sp^2, sp^3

Question Number : 42 Question Id : 70819121135 Question Type : MCQ Option Shuffling : Yes

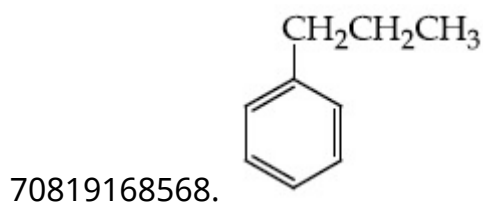
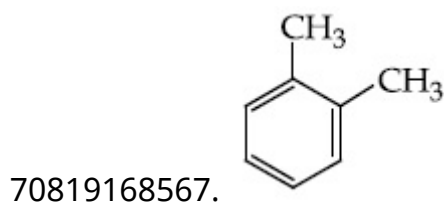
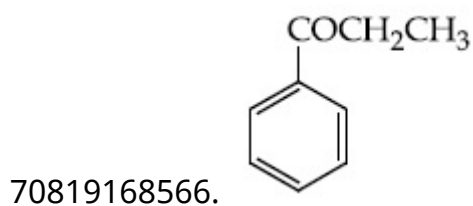
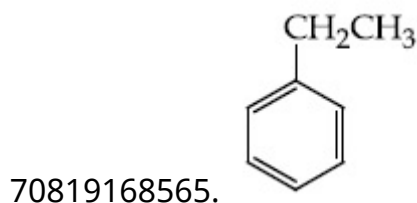
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



Considering the above reaction, the major product among the following is :

Options :

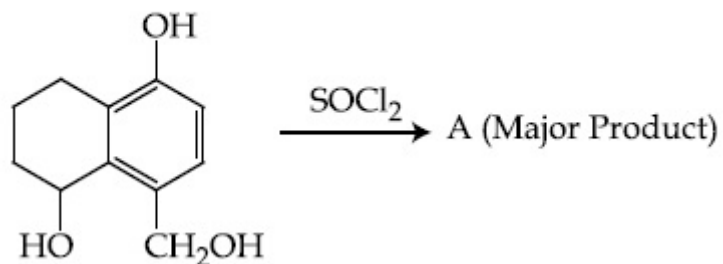


Question Number : 43 Question Id : 70819121136 Question Type : MCQ Option Shuffling : Yes

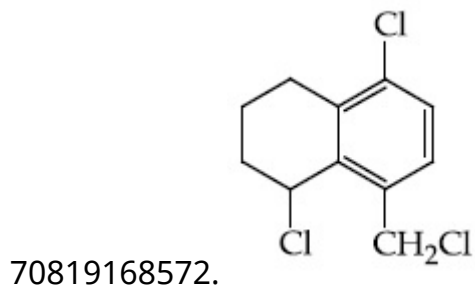
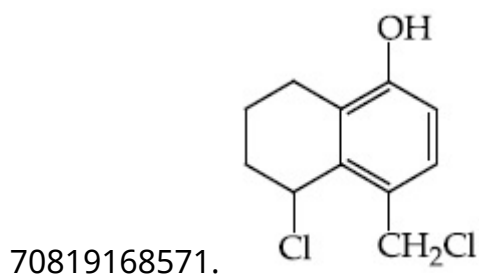
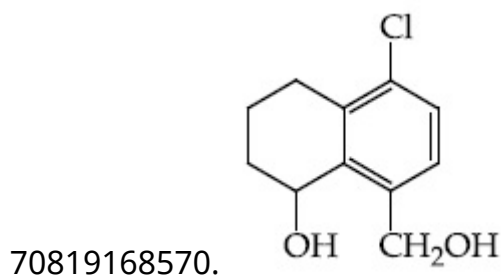
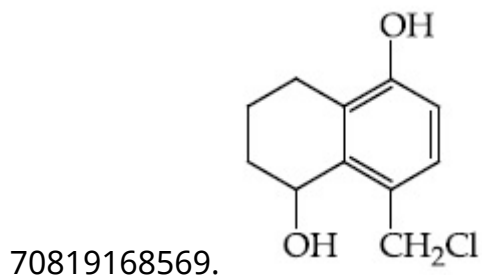
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify A in the given reaction.



Options :

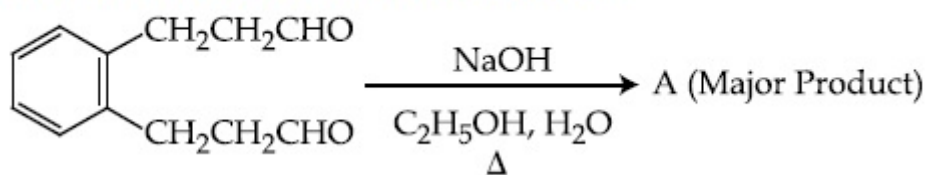


Question Number : 44 Question Id : 70819121137 Question Type : MCQ Optior

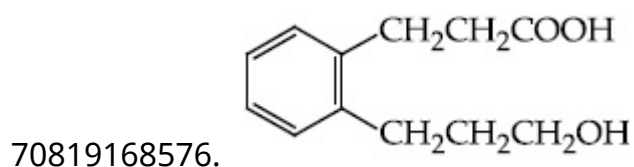
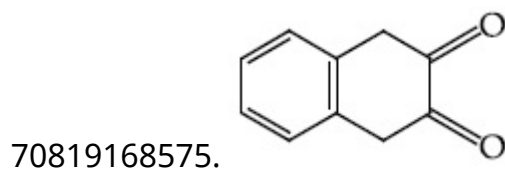
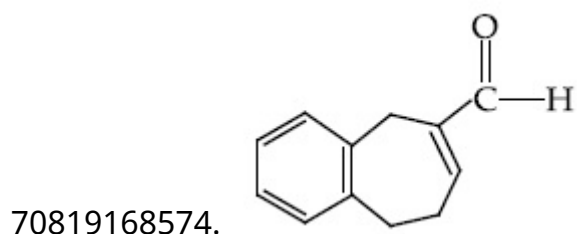
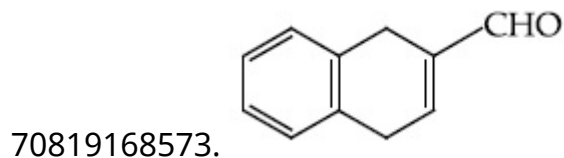
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify A in the given chemical reaction.



Options :

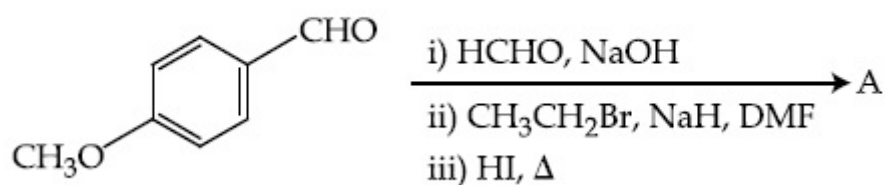


Question Number : 45 Question Id : 70819121138 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

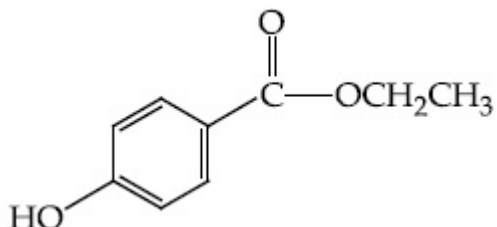
Correct Marks : 4 Wrong Marks : 1

Identify A in the following chemical reaction.

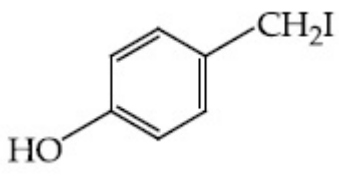


Options :

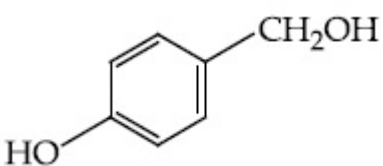
70819168577.



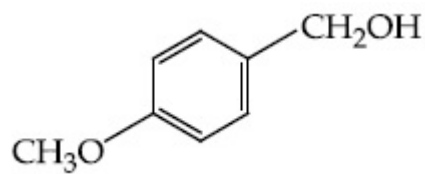
70819168578.



70819168579.



70819168580.



Question Number : 46 Question Id : 70819121139 Question Type : MCQ Option Shuffling : Yes

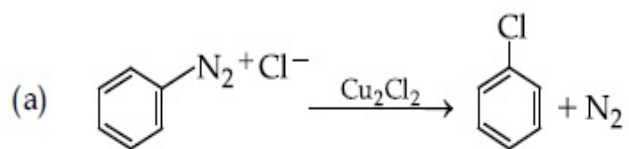
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

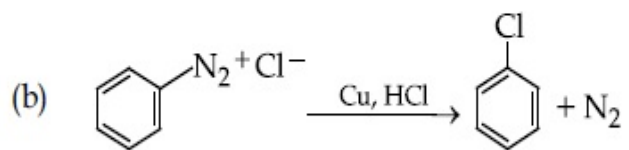
Match List-I with List-II.

List-I

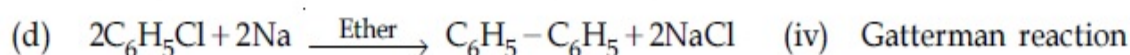
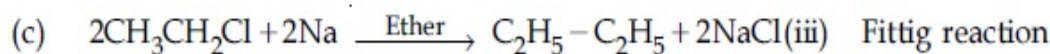
List-II



(i) Wurtz reaction



(ii) Sandmeyer reaction



Choose the correct answer from the options given below :

Options :

70819168581. (a) \rightarrow (ii), (b) \rightarrow (iv), (c) \rightarrow (i), (d) \rightarrow (iii)

70819168582. (a) \rightarrow (ii), (b) \rightarrow (i), (c) \rightarrow (iv), (d) \rightarrow (iii)

70819168583. (a) \rightarrow (iii), (b) \rightarrow (i), (c) \rightarrow (iv), (d) \rightarrow (ii)

70819168584. (a) \rightarrow (iii), (b) \rightarrow (iv), (c) \rightarrow (i), (d) \rightarrow (ii)

Question Number : 47 Question Id : 70819121140 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Seliwanoff test and Xanthoproteic test are used for the identification of _____ and _____ respectively.

Options :

70819168585. aldoses, ketoses

70819168586. ketoses, aldoses

70819168587. ketoses, proteins

70819168588. proteins, ketoses

Question Number : 48 Question Id : 70819121141 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List-I with List-II.

List-I	List-II
(a) Sucrose	(i) β -D-Galactose and β -D-Glucose
(b) Lactose	(ii) α -D-Glucose and β -D-Fructose
(c) Maltose	(iii) α -D-Glucose and α -D-Glucose

Choose the correct answer from the options given below :

Options :

70819168589. (a) \rightarrow (ii), (b) \rightarrow (i), (c) \rightarrow (iii)

70819168590. (a) \rightarrow (iii), (b) \rightarrow (ii), (c) \rightarrow (i)

70819168591. (a) \rightarrow (i), (b) \rightarrow (iii), (c) \rightarrow (ii)

70819168592. (a) \rightarrow (iii), (b) \rightarrow (i), (c) \rightarrow (ii)

Question Number : 49 Question Id : 70819121142 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

2,4-DNP test can be used to identify :

Options :

70819168593. halogens

70819168594. aldehyde

70819168595. amine

70819168596. ether

Question Number : 50 Question Id : 70819121143 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A. Phenyl methanamine

B. N,N-Dimethylaniline

C. N-Methyl aniline

D. Benzenamine

Choose the correct order of basic nature of the above amines.

Options :

70819168597. $A > B > C > D$

70819168598. $D > C > B > A$

70819168599. $A > C > B > D$

70819168600. $D > B > C > A$

Chemistry Section B

Section Id :	708191949
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5

Section Marks :	20
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	7081911229
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 70819121144 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The NaNO_3 weighed out to make 50 mL of an aqueous solution containing 70.0 mg Na^+ per mL is _____ g. (Rounded off to the nearest integer)

[Given : Atomic weight in g mol^{-1} - Na : 23 ; N : 14 ; O : 16]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 52 Question Id : 70819121145 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of octahedral voids per lattice site in a lattice is _____. (Rounded off to the nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 53 Question Id : 70819121146 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A ball weighing 10 g is moving with a velocity of 90 ms^{-1} . If the uncertainty in its velocity is 5%, then the uncertainty in its position is _____ $\times 10^{-33}$ m. (Rounded off to the nearest integer)

[Given : $h = 6.63 \times 10^{-34}$ Js]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 54 Question Id : 70819121147 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The average S–F bond energy in kJ mol^{-1} of SF_6 is _____. (Rounded off to the nearest integer)

[Given : The values of standard enthalpy of formation of $\text{SF}_6(\text{g})$, $\text{S}(\text{g})$ and $\text{F}(\text{g})$ are - 1100, 275 and 80 kJ mol^{-1} respectively.]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 55 Question Id : 70819121148 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

When 12.2 g of benzoic acid is dissolved in 100 g of water, the freezing point of solution was found to be -0.93°C ($K_f(\text{H}_2\text{O}) = 1.86 \text{ K kg mol}^{-1}$). The number (n) of benzoic acid molecules associated (assuming 100% association) is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 56 Question Id : 70819121149 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The pH of ammonium phosphate solution, if pK_a of phosphoric acid and pK_b of ammonium hydroxide are 5.23 and 4.75 respectively, is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

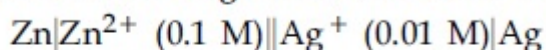
Possible Answers :

5 to 5.001

Question Number : 57 Question Id : 70819121150 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Emf of the following cell at 298 K in V is $x \times 10^{-2}$.



The value of x is _____. (Rounded off to the nearest integer)

$$[\text{Given : } E_{\text{Zn}^{2+}/\text{Zn}}^{\theta} = -0.76 \text{ V ; } E_{\text{Ag}^+/\text{Ag}}^{\theta} = +0.80 \text{ V ; } \frac{2.303RT}{F} = 0.059]$$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 58 Question Id : 70819121151 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

If the activation energy of a reaction is 80.9 kJ mol^{-1} , the fraction of molecules at 700 K, having enough energy to react to form products is e^{-x} . The value of x is _____.
(Rounded off to the nearest integer)

[Use $R = 8.31 \text{ J K}^{-1} \text{ mol}^{-1}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 59 Question Id : 70819121152 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

In mildly alkaline medium, thiosulphate ion is oxidized by MnO_4^- to "A". The oxidation state of sulphur in "A" is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.001

Question Number : 60 Question Id : 70819121153 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of stereoisomers possible for $[\text{Co}(\text{ox})_2(\text{Br})(\text{NH}_3)]^{2-}$ is _____.
[ox = oxalate]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes **Answers**

Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5 001