

## Chemistry Section A

Section Id :	864351796
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 :	8643511023
Question Shuffling Allowed :	Yes

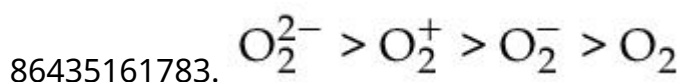
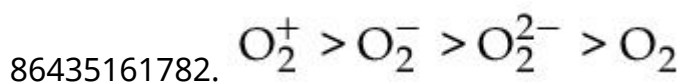
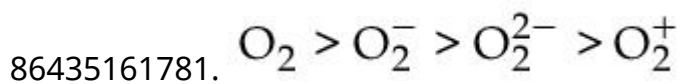
Question Number : 31 Question Id : 86435118400 Question Type : MCQ Option Shuffling : Yes

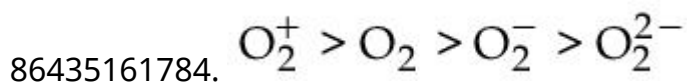
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the following the correct bond order sequence is :

Options :





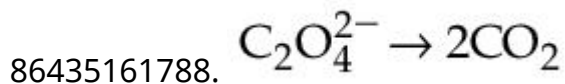
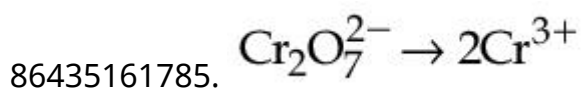
**Question Number : 32 Question Id : 86435118401 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Identify the process in which change in the oxidation state is five :

**Options :**



**Question Number : 33 Question Id : 86435118402 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**

**Example of Colloids**

**Classification**

(a) Cheese

(i) dispersion of liquid in liquid

(b) Pumice stone

(ii) dispersion of liquid in gas

(c) Hair cream

(iii) dispersion of gas in solid

(d) Cloud

(iv) dispersion of liquid in solid

Choose the most appropriate answer from the options given below :

**Options :**

86435161789. (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

86435161790. (a) - (iii), (b) - (iv), (c) - (i), (d) - (ii)

86435161791. (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)

86435161792. (a) - (iv), (b) - (iii), (c) - (i), (d) - (ii)

**Question Number : 34 Question Id : 86435118403 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

The ionic radii of  $F^-$  and  $O^{2-}$  respectively are  $1.33 \text{ \AA}$  and  $1.4 \text{ \AA}$ , while the covalent radius of N is  $0.74 \text{ \AA}$ .

The correct statement for the ionic radius of  $N^{3-}$  from the following is :

**Options :**

86435161793. It is smaller than  $O^{2-}$  and  $F^-$ , but bigger than of N

86435161794. It is bigger than  $O^{2-}$  and  $F^-$

86435161795. It is bigger than  $F^-$  and N, but smaller than of  $O^{2-}$

86435161796. It is smaller than  $F^-$  and N

**Question Number : 35 Question Id : 86435118404 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Match List I with List II : (Both having metallurgical terms)

**List - I**

- (a) Concentration of Ag ore
- (b) Blast furnace
- (c) Blister copper
- (d) Froth floatation method

**List - II**

- (i) Reverberatory furnace
- (ii) Pig iron
- (iii) Leaching with dilute NaCN solution
- (iv) Sulfide ores

Choose the correct answer from the options given below :

**Options :**

86435161797. (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)

86435161798. (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

86435161799. (a) - (iii), (b) - (iv), (c) - (i), (d) - (ii)

86435161800. (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)

**Question Number : 36 Question Id : 86435118405 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following metals forms interstitial hydride easily ?

**Options :**

86435161801. Fe

86435161802. Co

86435161803. Cr

86435161804. Mn

**Question Number : 37 Question Id : 86435118406 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
Elements	Properties
(a) Li	(i) Poor water solubility of $I^-$ salt
(b) Na	(ii) Most abundant element in cell fluid
(c) K	(iii) Bicarbonate salt used in fire extinguisher
(d) Cs	(iv) Carbonate salt decomposes easily on heating

Choose the correct answer from the options given below :

**Options :**

86435161805. (a) - (iv), (b) - (ii), (c) - (iii), (d) - (i)

86435161806. (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

86435161807. (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)

86435161808. (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)

**Question Number : 38 Question Id : 86435118407 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Identify the species having one  $\pi$ -bond and maximum number of canonical forms from the following :

**Options :**

86435161809.  $\text{SO}_3$

86435161810.  $\text{SO}_2$

86435161811.  $\text{O}_2$

86435161812.  $\text{CO}_3^{2-}$

**Question Number : 39 Question Id : 86435118408 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

The spin only magnetic moments (in BM) for free  $\text{Ti}^{3+}$ ,  $\text{V}^{2+}$  and  $\text{Sc}^{3+}$  ions respectively are  
(At. No. Sc : 21 ; Ti : 22 ; V : 23)

**Options :**

86435161813. 0, 3.87, 1.73

86435161814. 1.73, 0, 3.87

86435161815. 3.87, 1.73, 0

86435161816. 1.73, 3.87, 0

**Question Number : 40 Question Id : 86435118409 Question Type : MCQ Option Shuffling : Yes**

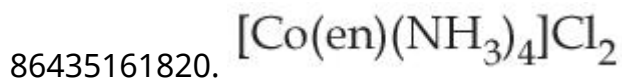
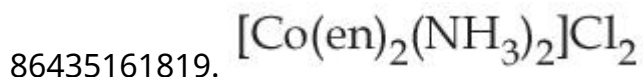
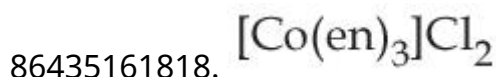
**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following metal complexes is most stable ?



**Options :**



**Question Number : 41 Question Id : 86435118410 Question Type : MCQ Option Shuffling : Yes  
Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

Given below are two statements :

**Statement I :** Chlorofluoro carbons breakdown by radiation in the visible energy region and release chlorine gas in the atmosphere which then reacts with stratospheric ozone.

**Statement II :** Atmospheric ozone reacts with nitric oxide to give nitrogen and oxygen gases, which add to the atmosphere.

For the above statements choose the correct answer from the options given below :

**Options :**

86435161821. Both **statement I** and **II** are correct

86435161822. Both **statement I** and **II** are false

86435161823. **Statement I** is correct but **statement II** is false

86435161824. **Statement I** is incorrect but **statement II** is true

Question Number : 42 Question Id : 86435118411 Question Type : MCQ Option Shuffling : Yes

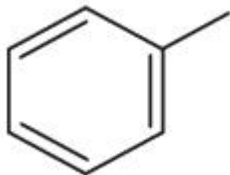
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which among the following is the strongest acid ?

Options :

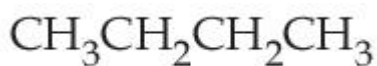
86435161825.



86435161826.



86435161827.



86435161828.

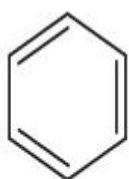


Question Number : 43 Question Id : 86435118412 Question Type : MCQ Option Shuffling : Yes

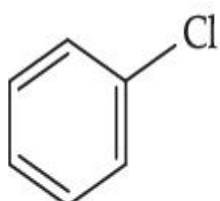
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

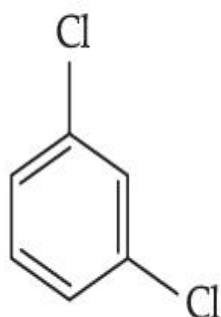
The correct decreasing order of densities of the following compounds is :



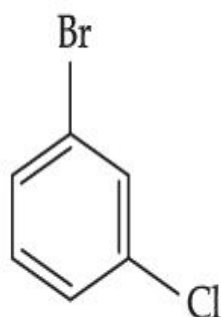
(A)



(B)



(C)



(D)

Options :



86435161829. (D) > (C) > (B) > (A)

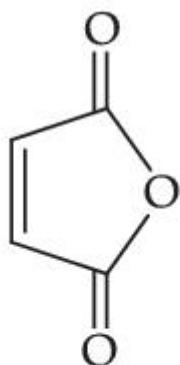
86435161830. (C) > (B) > (A) > (D)

86435161831. (A) > (B) > (C) > (D)

86435161832. (C) > (D) > (A) > (B)

**Question Number : 44 Question Id : 86435118413 Question Type : MCQ Option Shuffling : Yes  
Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**



Maleic anhydride

Maleic anhydride can be prepared by :

**Options :**

86435161833. Heating trans-but-2-enedioic acid

86435161834. Heating cis-but-2-enedioic acid

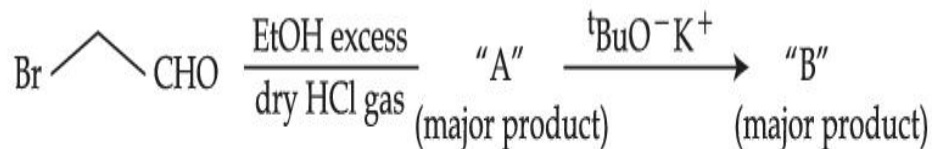
86435161835. Treating trans-but-2-enedioic acid with alcohol and acid

86435161836. Treating cis-but-2-enedioic acid with alcohol

Question Number : 45 Question Id : 86435118414 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

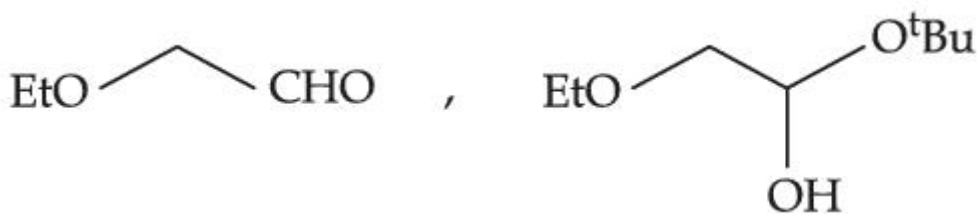
Correct Marks : 4 Wrong Marks : 1



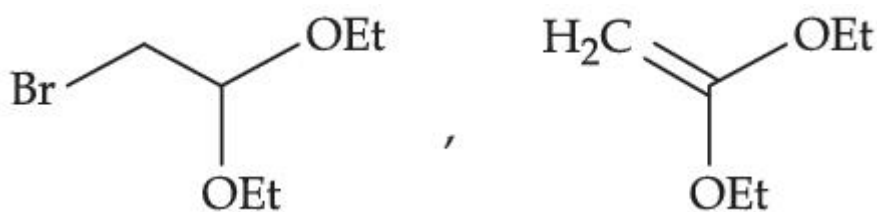
[where Et  $\Rightarrow$   $-\text{C}_2\text{H}_5$  tBu  $\Rightarrow$   $(\text{CH}_3)_3\text{C}-$ ]

Consider the above reaction sequence, Product "A" and Product "B" formed respectively are :

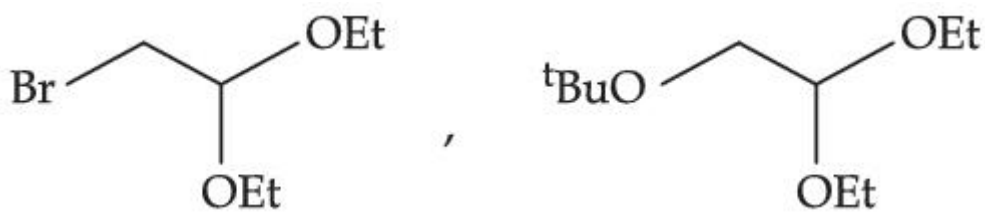
Options :



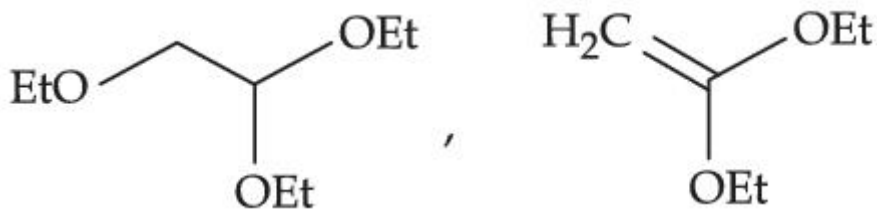
86435161837.



86435161838.



86435161839.



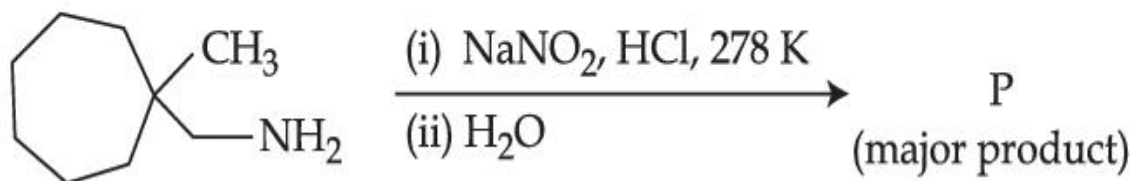
86435161840.

Question Number : 46 Question Id : 86435118415 Question Type : MCQ Op

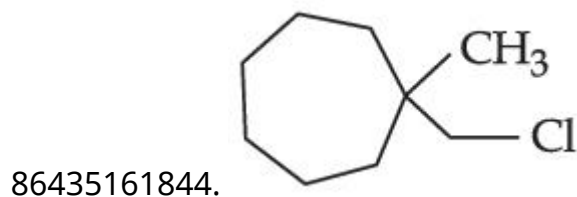
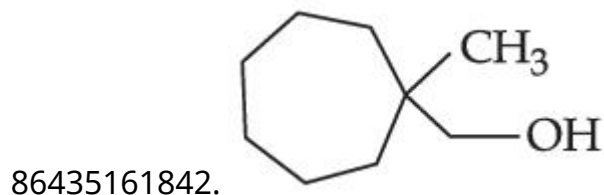
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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



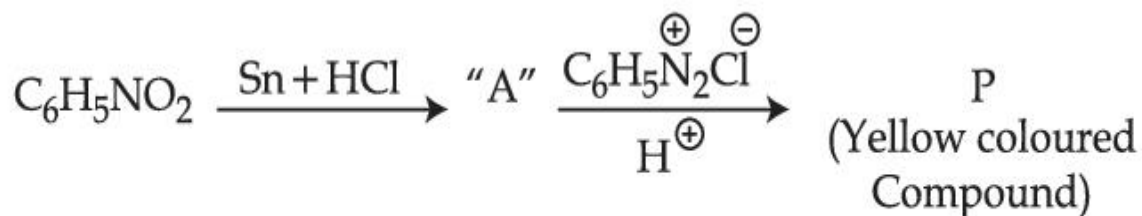
Options :



Question Number : 47 Question Id : 86435118416 Question Type : MCQ Option Shuffling : Yes

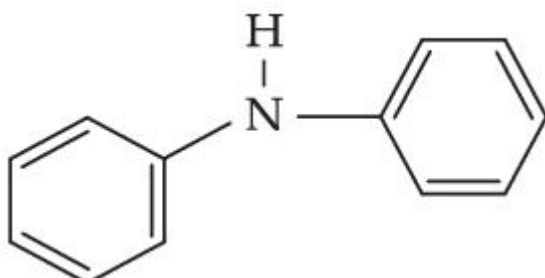
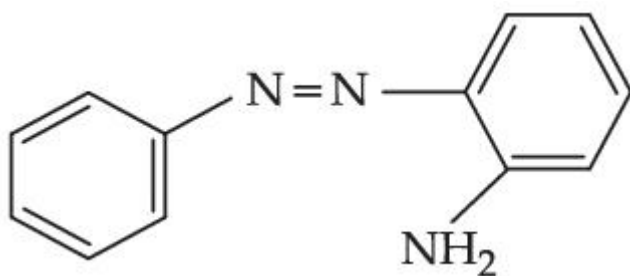
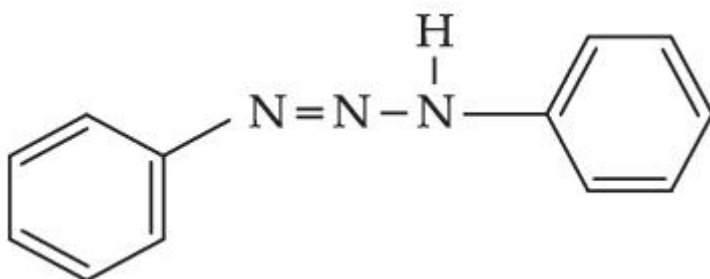
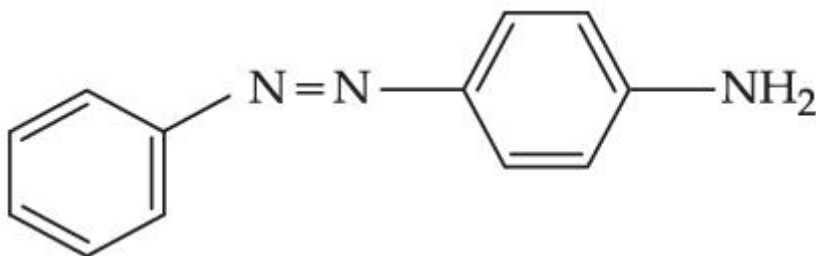
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



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

Options :



Question Number : 48 Question Id : 86435118417 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A biodegradable polyamide can be made from :

Options :

86435161849. Glycine and aminocaproic acid

86435161850. Glycine and isoprene

86435161851. Styrene and caproic acid

86435161852. Hexamethylene diamine and adipic acid

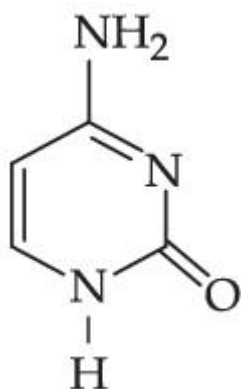
Question Number : 49 Question Id : 86435118418 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

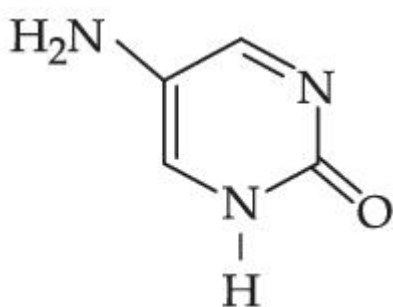
Correct Marks : 4 Wrong Marks : 1

Which one of the following is correct structure for cytosine ?

Options :

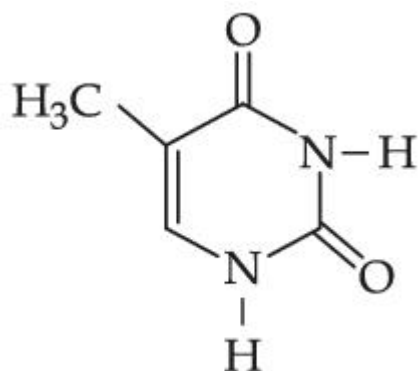
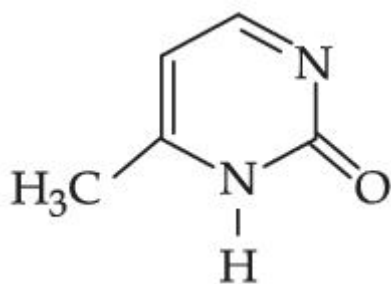


86435161853.



86435161854.

86435161855.



86435161856.

**Question Number : 50 Question Id : 86435118419 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

**Correct Marks : 4 Wrong Marks : 1**

A reaction of benzonitrile with one equivalent  $\text{CH}_3\text{MgBr}$  followed by hydrolysis produces a yellow liquid "P". The compound "P" will give positive \_\_\_\_\_.

**Options :**

86435161857. Tollen's test

86435161858. Ninhydrin's test

86435161859. Iodoform test

86435161860. Schiff's test



<b>Section Id :</b>	864351797
<b>Section Number :</b>	4
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	10
<b>Number of Questions to be attempted :</b>	5
<b>Section Marks :</b>	20
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	8643511024
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 51 Question Id : 86435118420 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

The number of significant figures in 0.00340 is \_\_\_\_\_.

**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 : 86435118421 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

An LPG cylinder contains gas at a pressure of 300 kPa at 27°C. The cylinder can withstand the pressure of  $1.2 \times 10^6$  Pa. The room in which the cylinder is kept catches fire. The minimum temperature at which the bursting of cylinder will take place is \_\_\_\_\_ °C. (Nearest integer)

**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 : 86435118422 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

An accelerated electron has a speed of  $5 \times 10^6 \text{ ms}^{-1}$  with an uncertainty of 0.02%. The uncertainty in finding its location while in motion is  $x \times 10^{-9} \text{ m}$ . The value of  $x$  is \_\_\_\_\_.  
(Nearest integer)

[Use mass of electron =  $9.1 \times 10^{-31} \text{ kg}$ ,  $h = 6.63 \times 10^{-34} \text{ Js}$ ,  $\pi = 3.14$ ]

**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 : 86435118423 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

A system does 200 J of work and at the same time absorbs 150 J of heat. The magnitude of the change in internal energy is \_\_\_\_\_ J. (Nearest integer)

**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 : 86435118424 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

When 3.00 g of a substance 'X' is dissolved in 100 g of  $\text{CCl}_4$ , it raises the boiling point by 0.60 K. The molar mass of the substance 'X' is \_\_\_\_\_  $\text{g mol}^{-1}$ . (Nearest integer)

[Given  $K_b$  for  $\text{CCl}_4$  is  $5.0 \text{ K kg mol}^{-1}$ ]

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number : 56 Question Id : 86435118425 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

Assuming that  $\text{Ba}(\text{OH})_2$  is completely ionised in aqueous solution under the given conditions the concentration of  $\text{H}_3\text{O}^+$  ions in 0.005 M aqueous solution of  $\text{Ba}(\text{OH})_2$  at 298 K is \_\_\_\_\_  $\times 10^{-12} \text{ mol L}^{-1}$ . (Nearest integer)

**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 : 86435118426 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

For a chemical reaction  $A \rightarrow B$ , it was found that concentration of B is increased by  $0.2 \text{ mol L}^{-1}$  in 30 min. The average rate of the reaction is \_\_\_\_\_  $\times 10^{-1} \text{ mol L}^{-1} \text{ h}^{-1}$ .  
(in nearest integer)

**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 : 86435118427 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

Number of electrons present in 4f orbital of  $\text{Ho}^{3+}$  ion is \_\_\_\_\_. (Given Atomic No. of Ho = 67)

**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 : 86435118428 Question Type : SA**

**Correct Marks : 4 Wrong Marks : 0**

0.8 g of an organic compound was analysed by Kjeldahl's method for the estimation of nitrogen. If the percentage of nitrogen in the compound was found to be 42%, then \_\_\_\_\_ mL of 1 M  $\text{H}_2\text{SO}_4$  would have been neutralized by the ammonia evolved during the analysis.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

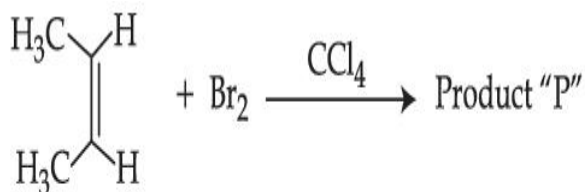
**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number :** 60 **Question Id :** 86435118429 **Question Type :** SA

**Correct Marks :** 4 **Wrong Marks :** 0



Consider the above chemical reaction. The total number of stereoisomers possible for Product 'P' is \_\_\_\_\_.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1