

Chemistry Section A

Section Id :	864351940
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 :	8643511167
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 86435120560 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The unit of the van der Waals gas equation parameter 'a' in

$$\left(P + \frac{an^2}{V^2} \right) (V - nb) = nRT \text{ is :}$$

Options :

86435168261. kg m s^{-2}

86435168262. $\text{atm dm}^6 \text{ mol}^{-2}$



86435168263. $\text{dm}^3 \text{mol}^{-1}$

86435168264. kg m s^{-1}

Question Number : 32 Question Id : 86435120561 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Match items of **List - I** with those of **List - II** :

List - I (Property)	List - II (Example)
(a) Diamagnetism	(i) MnO
(b) Ferrimagnetism	(ii) O_2
(c) Paramagnetism	(iii) NaCl
(d) Antiferromagnetism	(iv) Fe_3O_4

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

Options :

86435168265. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

86435168266. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

86435168267. (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii)

86435168268. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)



Question Number : 33 Question Id : 86435120562 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II :

List - I (Species)	List - II (No. of lone pairs of electrons on the central atom)
(a) XeF_2	(i) 0
(b) XeO_2F_2	(ii) 1
(c) XeO_3F_2	(iii) 2
(d) XeF_4	(iv) 3

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

Options :

86435168269. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

86435168270. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

86435168271. (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

86435168272. (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

Question Number : 34 Question Id : 86435120563 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1



Tyndall effect is more effectively shown by :

Options :

86435168273. true solution

86435168274. lyophilic colloid

86435168275. lyophobic colloid

86435168276. suspension

Question Number : 35 Question Id : 86435120564 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In which one of the following molecules strongest back donation of an electron pair from halide to boron is expected ?

Options :

86435168277. BI_3

86435168278. BBr_3

86435168279. BCl_3

86435168280. BF_3



Question Number : 36 Question Id : 86435120565 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which refining process is generally used in the purification of low melting metals ?

Options :

86435168281. Electrolysis

86435168282. Liquation

86435168283. Zone refining

86435168284. Chromatographic method

Question Number : 37 Question Id : 86435120566 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Deuterium resembles hydrogen in properties but :

Options :

86435168285. reacts vigorously than hydrogen

86435168286. emits β^+ particles

86435168287. reacts slower than hydrogen

86435168288. reacts just as hydrogen



Question Number : 38 Question Id : 86435120567 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number of water molecules in gypsum, dead burnt plaster and plaster of Paris, respectively are :

Options :

86435168289. 2, 0 and 1

86435168290. 0.5, 0 and 2

86435168291. 5, 0 and 0.5

86435168292. 2, 0 and 0.5

Question Number : 39 Question Id : 86435120568 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In polythionic acid, $H_2S_xO_6$ ($x = 3$ to 5) the oxidation state(s) of sulphur is/are :

Options :

86435168293. +5 only

86435168294. +3 and +5 only

86435168295. 0 and +5 only

86435168296. +6 only



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Question Number : 40 Question Id : 86435120569 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The nature of oxides V_2O_3 and CrO is indexed as 'X' and 'Y' type respectively. The correct set of X and Y is :

Options :

86435168297. X = amphoteric Y = basic

86435168298. X = basic Y = basic

86435168299. X = basic Y = amphoteric

86435168300. X = acidic Y = acidic

Question Number : 41 Question Id : 86435120570 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

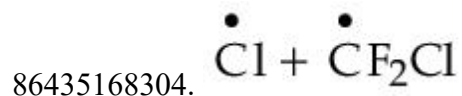
The gas 'A' is having very low reactivity reaches to stratosphere. It is non-toxic and non-flammable but dissociated by UV-radiations in stratosphere. The intermediates formed initially from the gas 'A' are :

Options :

86435168301. $\dot{C}H_3 + \dot{C}F_2Cl$

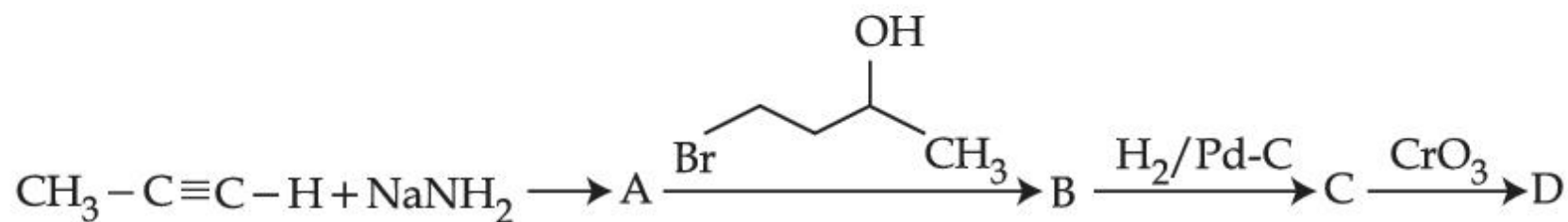
86435168302. $Cl\dot{O} + \dot{C}H_3$



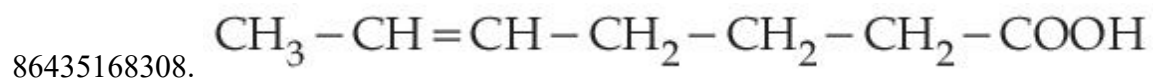
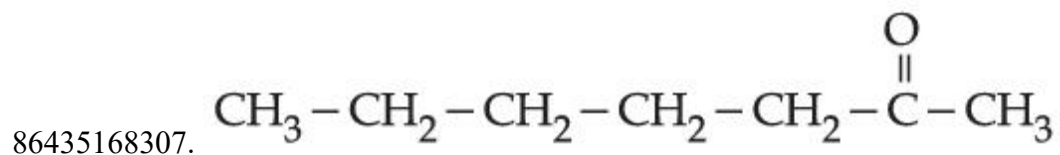
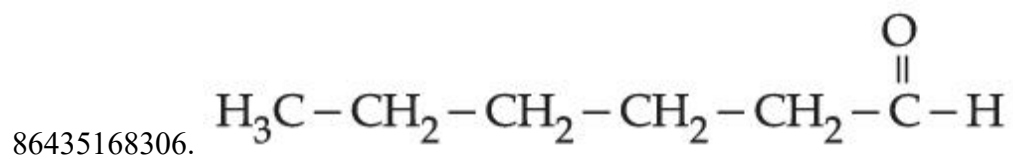
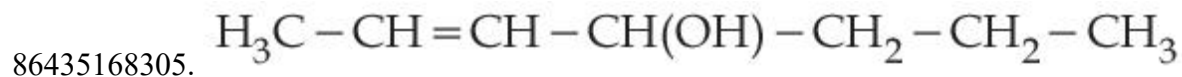


Question Number : 42 Question Id : 86435120571 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

In the following sequence of reactions, the final product D is :

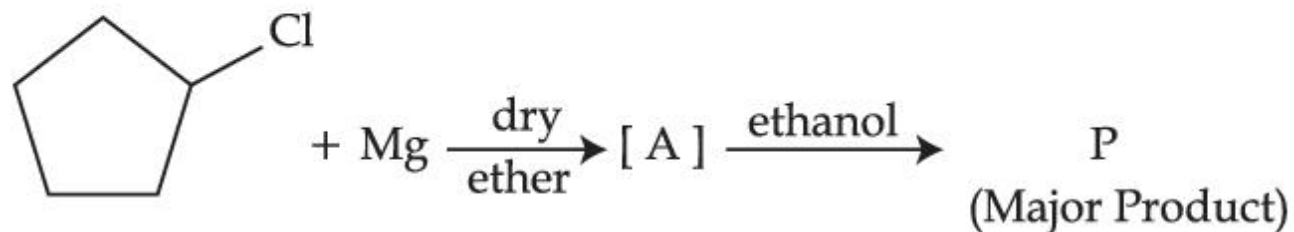


Options :

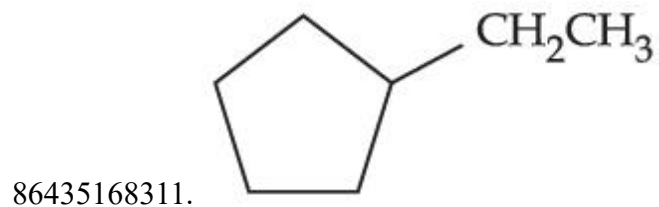
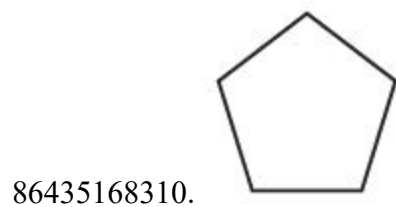
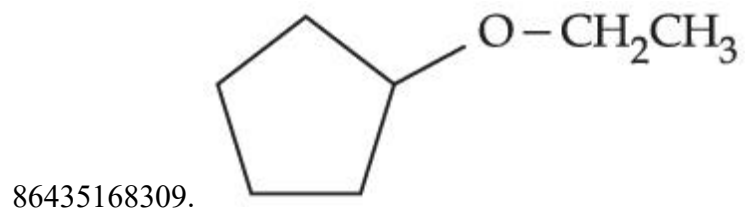


Question Number : 43 Question Id : 86435120572 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

In the following sequence of reactions the P is :



Options :

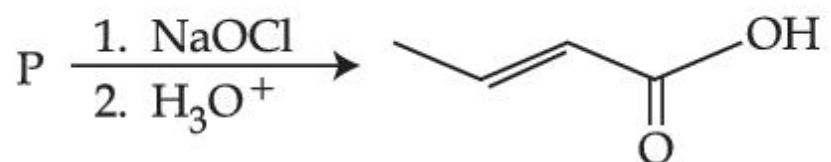




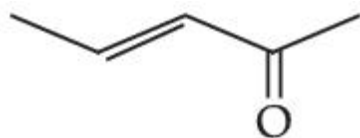
86435168312.

Question Number : 44 Question Id : 86435120573 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

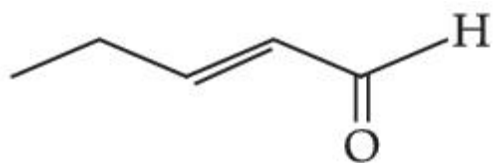
The structure of the starting compound P used in the reaction given below is :



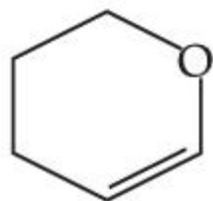
Options :



86435168313.



86435168314.



86435168315.





86435168316.

Question Number : 45 Question Id : 86435120574 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) : Synthesis of ethyl phenyl ether may be achieved by Williamson synthesis.

Reason (R) : Reaction of bromobenzene with sodium ethoxide yields ethyl phenyl ether.

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

Options :

86435168317. Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

86435168318. Both **(A)** and **(R)** are correct but **(R)** is NOT the correct explanation of **(A)**

86435168319. **(A)** is correct but **(R)** is not correct

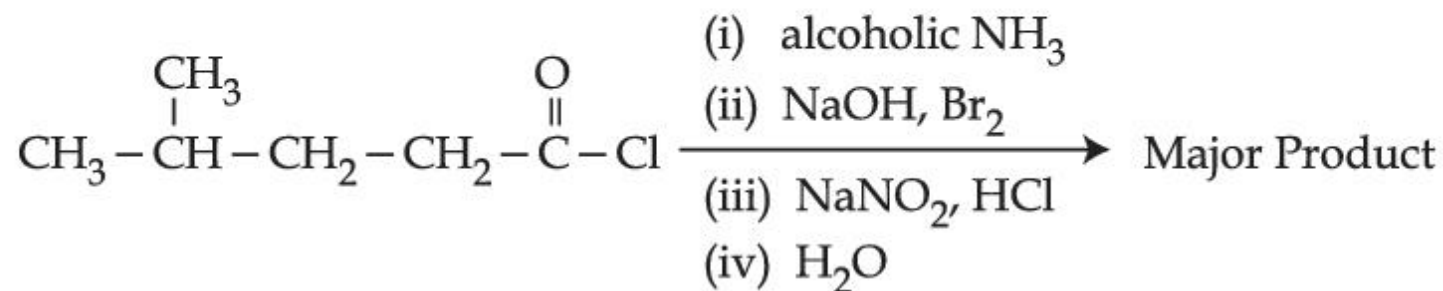
86435168320. **(A)** is not correct but **(R)** is correct



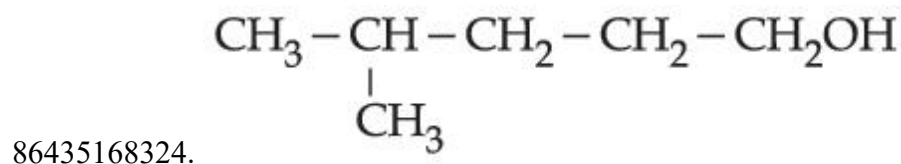
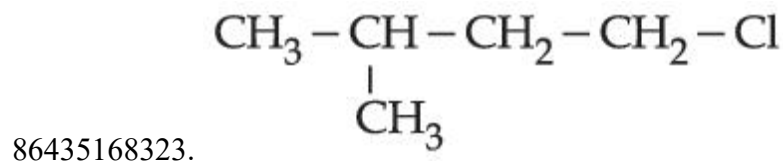
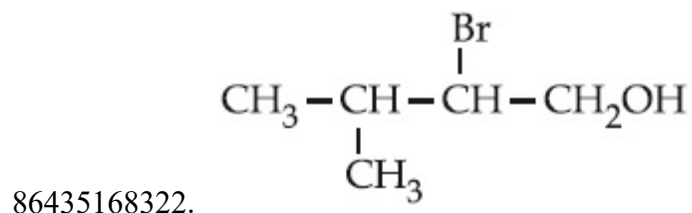
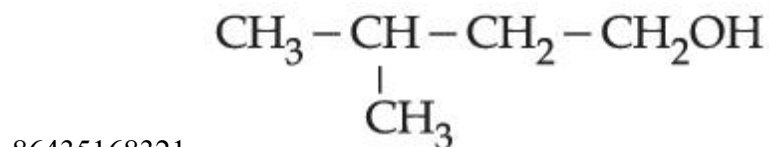
Question Number : 46 Question Id : 86435120575 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The major product of the following reaction is :



Options :



Question Number : 47 Question Id : 86435120576 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Which of the following is **not** a correct statement for primary aliphatic amines ?

Options :

86435168325. Primary amines can be prepared by the Gabriel phthalimide synthesis.

86435168326. Primary amines are less basic than the secondary amines.

86435168327.

The intermolecular association in primary amines is less than the intermolecular association in secondary amines.

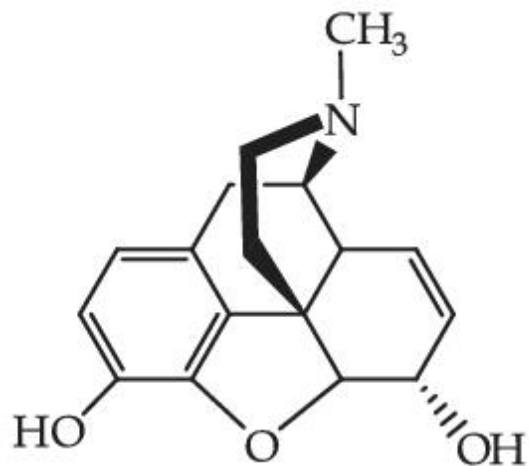
86435168328.

Primary amines on treating with nitrous acid solution form corresponding alcohols except methyl amine.

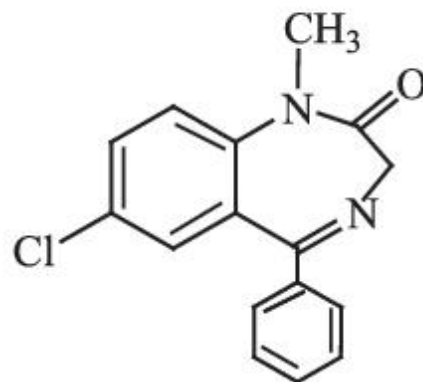
Question Number : 48 Question Id : 86435120577 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1



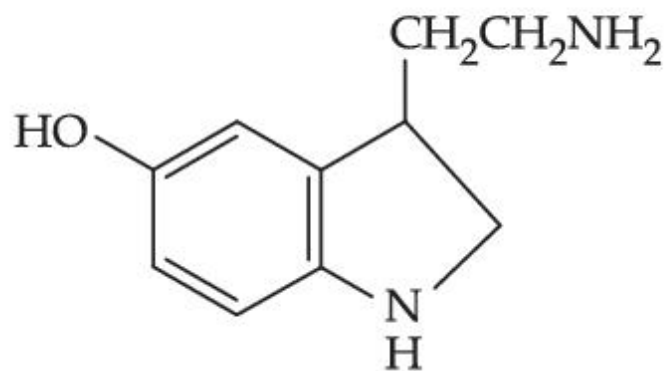
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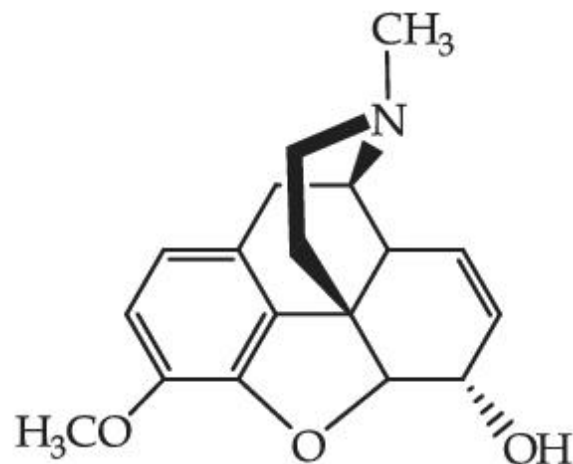
(A)



(B)



(C)



(D)

The correct statement about (A), (B), (C) and (D) is :

Options :

86435168329. (A), (B) and (C) are narcotic analgesics



86435168330. (B), (C) and (D) are tranquillizers

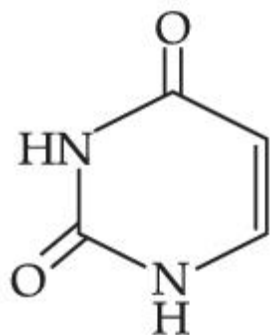
86435168331. (A) and (D) are tranquillizers

86435168332. (B) and (C) are tranquillizers

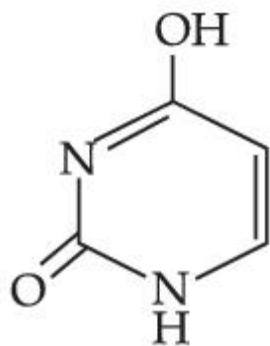
Question Number : 49 Question Id : 86435120578 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Out of following isomeric forms of uracil, which one is present in RNA ?

Options :

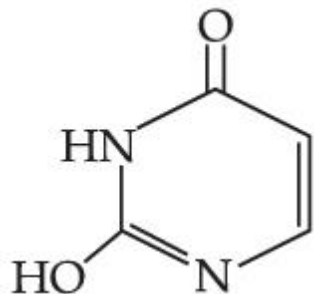


86435168333.

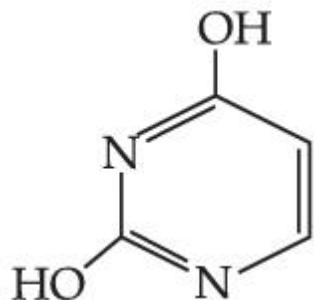


86435168334.





86435168335.



86435168336.

Question Number : 50 Question Id : 86435120579 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Acidic ferric chloride solution on treatment with excess of potassium ferrocyanide gives a Prussian blue coloured colloidal species. It is :

Options :



86435168340. $K_5Fe[Fe(CN)_6]_2$

Chemistry Section B

Section Id :	864351941
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 :	8643511168
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435120580 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The kinetic energy of an electron in the second Bohr orbit of a hydrogen atom is equal to

$\frac{h^2}{x m a_0^2}$. The value of $10 x$ is _____. (a_0 is radius of Bohr's orbit)

(Nearest integer)

[Given : $\pi = 3.14$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal



Text Areas : PlainText

Possible Answers :

1

Question Number : 52 Question Id : 86435120581 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

200 mL of 0.2 M HCl is mixed with 300 mL of 0.1 M NaOH. The molar heat of neutralization of this reaction is -57.1 kJ. The increase in temperature in $^{\circ}\text{C}$ of the system on mixing is $x \times 10^{-2}$. The value of x is _____. (Nearest integer)

[Given : Specific heat of water = $4.18 \text{ J g}^{-1} \text{ K}^{-1}$

Density of water = 1.00 g cm^{-3}]

(Assume no volume change on mixing)

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 : 86435120582 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

1 kg of 0.75 molal aqueous solution of sucrose can be cooled up to -4°C before freezing. The amount of ice (in g) that will be separated out is _____. (Nearest integer)

[Given : $K_f(\text{H}_2\text{O}) = 1.86 \text{ K kg mol}^{-1}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes



Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 54 Question Id : 86435120583 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of moles of NH_3 , that must be added to 2 L of 0.80 M AgNO_3 in order to reduce the concentration of Ag^+ ions to 5.0×10^{-8} M ($K_{\text{formation}}$ for $[\text{Ag}(\text{NH}_3)_2]^+ = 1.0 \times 10^8$) is _____. (Nearest integer)

[Assume no volume change on adding NH_3]

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 : 86435120584 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

When 10 mL of an aqueous solution of KMnO_4 was titrated in acidic medium, equal volume of 0.1 M of an aqueous solution of ferrous sulphate was required for complete discharge of colour. The strength of KMnO_4 in grams per litre is _____ $\times 10^{-2}$. (Nearest integer)

[Atomic mass of K = 39, Mn = 55, O = 16]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal



Text Areas : PlainText

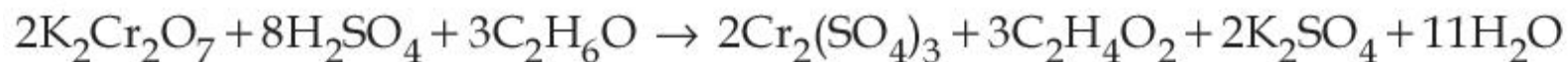
Possible Answers :

1

Question Number : 56 Question Id : 86435120585 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The reaction that occurs in a breath analyser, a device used to determine the alcohol level in a person's blood stream is



If the rate of appearance of $\text{Cr}_2(\text{SO}_4)_3$ is $2.67 \text{ mol min}^{-1}$ at a particular time, the rate of disappearance of $\text{C}_2\text{H}_6\text{O}$ at the same time is _____ mol min^{-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 : 86435120586 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of f electrons in the ground state electronic configuration of Np ($Z = 93$) 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 : 58 Question Id : 86435120587 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

1 mol of an octahedral metal complex with formula $MCl_3 \cdot 2L$ on reaction with excess of $AgNO_3$ gives 1 mol of $AgCl$. The denticity of Ligand L 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 : 86435120588 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

In Carius method for estimation of halogens, 0.2 g of an organic compound gave 0.188 g of $AgBr$. The percentage of bromine in the compound is _____. (Nearest integer)

[Atomic mass : $Ag = 108$, $Br = 80$]

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 : 86435120589 Question Type : SA

Correct Marks : 4 Wrong Marks : 0



The number of moles of CuO, that will be utilized in Dumas method for estimating nitrogen in a sample of 57.5 g of N,N-dimethylaminopentane is _____ $\times 10^{-2}$. (Nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1



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