

Chemistry Section A

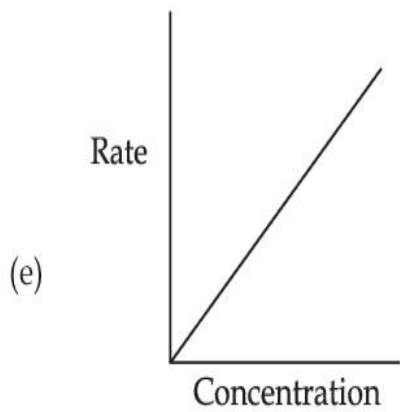
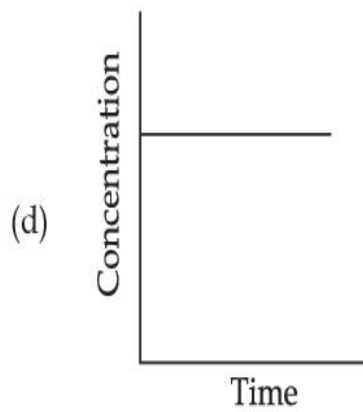
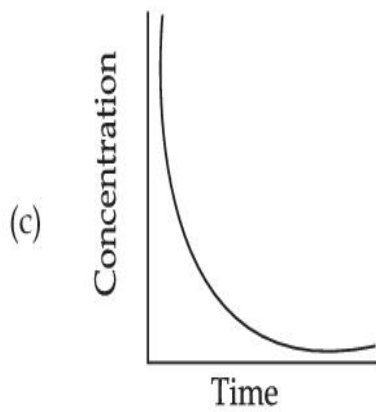
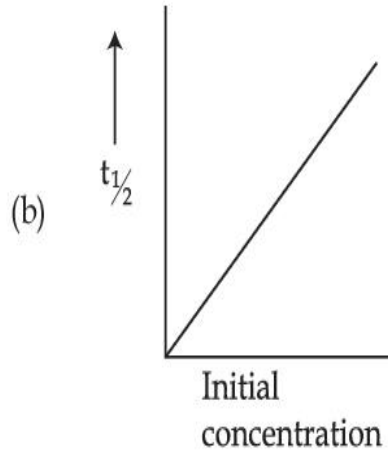
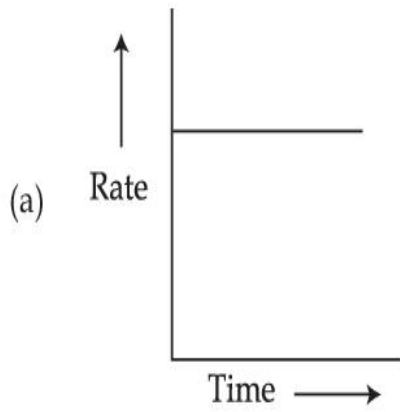
Section Id :	864351784
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511011
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 86435118220 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For the following graphs,



Choose from the options given below, the **correct** one regarding order of reaction is :

Options :

(a) and (b) Zero order

86435161241. (c) and (e) First order

(a) and (b) Zero order

86435161242. (e) First order

(b) Zero order

86435161243. (c) and (e) First order

(b) and (d) Zero order

86435161244. (e) First order

Question Number : 32 Question Id : 86435118221 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Sodium stearate $\text{CH}_3(\text{CH}_2)_{16}\text{COO}^- \text{Na}^+$ is an anionic surfactant which forms micelles in oil.

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

Options :

86435161245. It forms spherical micelles with $\text{CH}_3(\text{CH}_2)_{16}$ - group pointing outwards on the surface of sphere.

86435161246. It forms non-spherical micelles with $-\text{COO}^\ominus$ group pointing outwards on the surface.

86435161247. It forms spherical micelles with $\text{CH}_3(\text{CH}_2)_{16}$ - group pointing towards the centre of sphere.

86435161248. It forms non-spherical micelles with $\text{CH}_3(\text{CH}_2)_{16}$ - group pointing towards the centre.

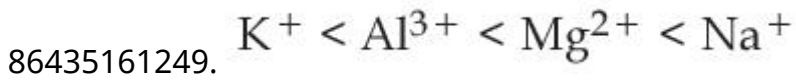
Question Number : 33 Question Id : 86435118222 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The ionic radii of K^+ , Na^+ , Al^{3+} and Mg^{2+} are in the ord

Options :



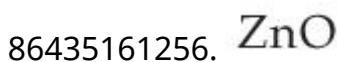
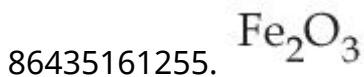
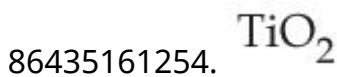
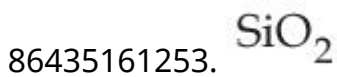
Question Number : 34 Question Id : 86435118223 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the leaching of alumina from bauxite, the ore expected to leach out in the process by reacting with NaOH is :

Options :



Question Number : 35 Question Id : 86435118224 Question Type : MCO Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

At 298.2 K the relationship between enthalpy of bond dissociation (in kJ mol^{-1}) for hydrogen (E_{H}) and its isotope, deuterium (E_{D}), is best described by :

Options :

86435161257. $E_{\text{H}} = E_{\text{D}}$

86435161258. $E_{\text{H}} \simeq E_{\text{D}} - 7.5$

86435161259. $E_{\text{H}} = 2E_{\text{D}}$

86435161260. $E_{\text{H}} = \frac{1}{2}E_{\text{D}}$

Question Number : 36 Question Id : 86435118225 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : None of the alkaline earth metal hydroxides dissolve in alkali.

Statement II : Solubility of alkaline earth metal hydroxides in water increases down the group.

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

Options :

86435161261. **Statement I and Statement II both are correct.**

86435161262. **Statement I and Statement II both are incorrect.**

86435161263. **Statement I is correct but Statement II is incorrect.**

86435161264. **Statement I is incorrect but Statement II**

Question Number : 37 Question Id : 86435118226 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following compounds of Group-14 elements is **not** known ?

Options :

86435161265. $[\text{SiF}_6]^{2-}$

86435161266. $[\text{SiCl}_6]^{2-}$

86435161267. $[\text{GeCl}_6]^{2-}$

86435161268. $[\text{Sn}(\text{OH})_6]^{2-}$

Question Number : 38 Question Id : 86435118227 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The correct order of following 3d metal oxides, according to their oxidation numbers is :

(a) CrO_3

(b) Fe_2O_3

(c) MnO_2

(d) V_2O_5

(e) Cu_2O

Options :

86435161269. (a) > (c) > (d) > (b) > (e)

86435161270. (a) > (d) > (c) > (b) > (e)

86435161271. (d) > (a) > (b) > (c) > (e)

86435161272. (c) > (a) > (d) > (e) > (b)

Question Number : 39 Question Id : 86435118228 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following species responds to an external magnetic field ?

Options :

86435161273. $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$

86435161274. $[\text{Ni}(\text{CN})_4]^{2-}$

86435161275. $[\text{Co}(\text{CN})_6]^{3-}$

86435161276. $[\text{Ni}(\text{CO})_4]$

Question Number : 40 Question Id : 86435118229 Question Type : MCQ Option Shuffling : Yes

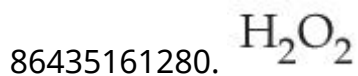
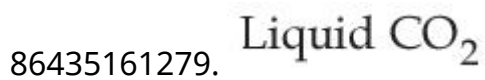
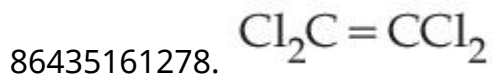
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following chemical agent is **not** being used for dry-cleaning of clothes ?

Options :

86435161277. CCl_4



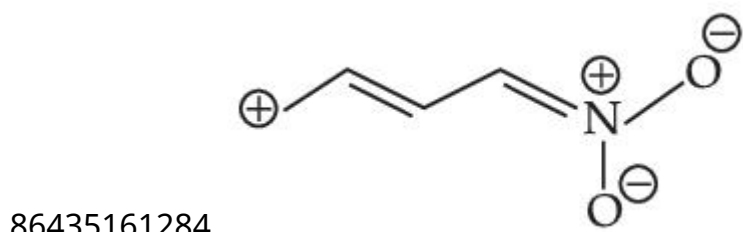
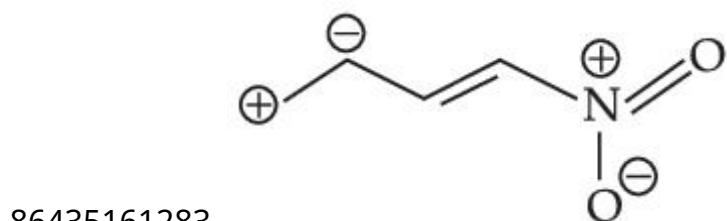
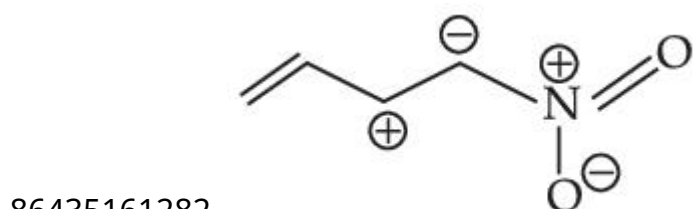
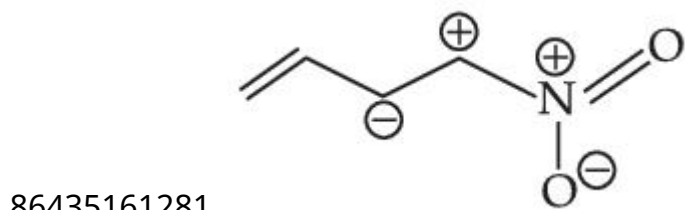
Question Number : 41 Question Id : 86435118230 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one among the following resonating structures is not correct ?

Options :



Question Number : 42 Question Id : 86435118231 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An Organic compound 'A' C_4H_8 on treatment with $KMnO_4/H^+$ yields compound 'B' C_3H_6O . Compound 'A' also yields compound 'B' an ozonolysis. Compound 'A' is :

Options :

86435161285. But-2-ene

86435161286. Cyclobutane

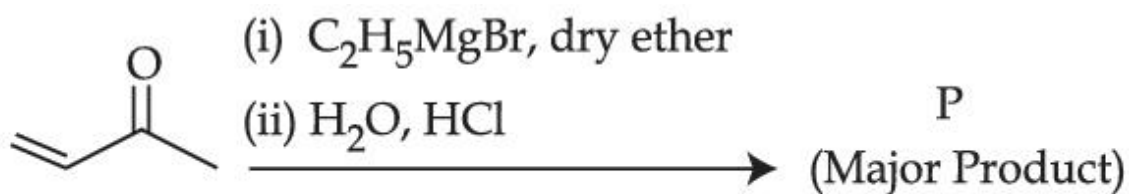
86435161287. 2-Methylpropene

86435161288. 1-Methylcyclopropane

Question Number : 43 Question Id : 86435118232 Question Type : MCQ Option Shuffling : Yes

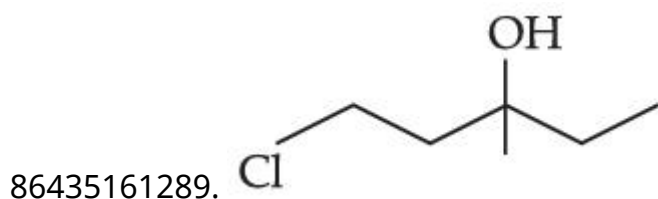
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

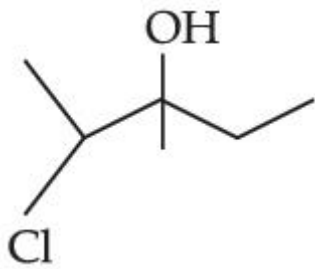


Consider the above reaction, the major product 'P' is :

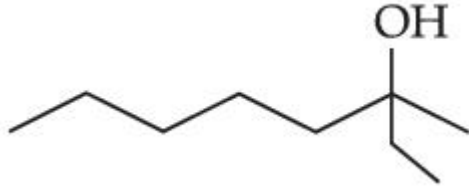
Options :



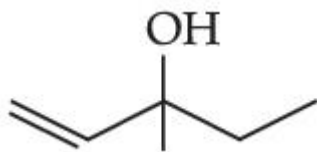
86435161290.



86435161291.

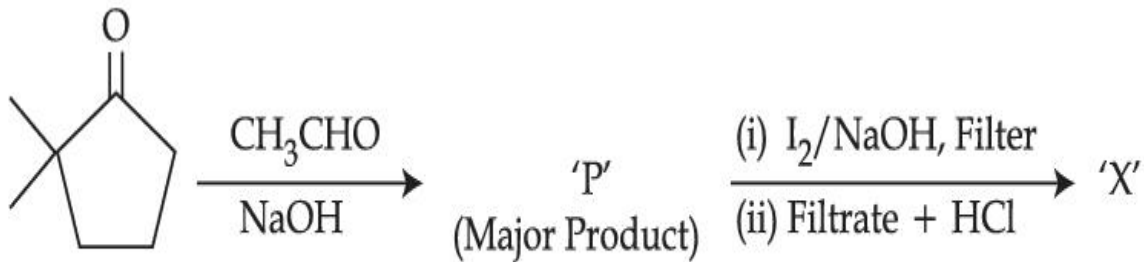


86435161292.



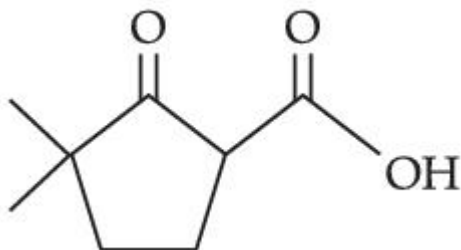
Question Number : 44 Question Id : 86435118233 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



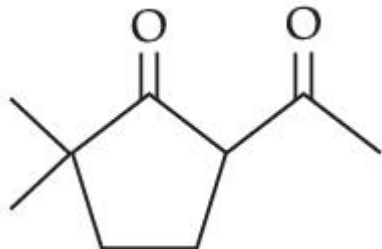
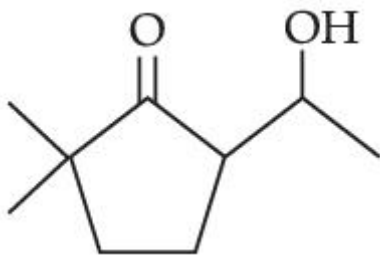
Consider the given reaction, the product 'X' is :

Options :

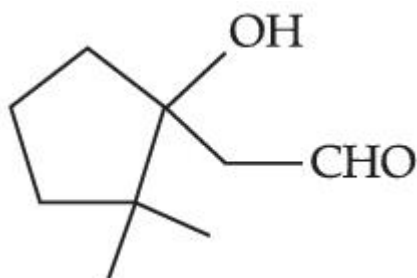


86435161293.

86435161294.



86435161295.

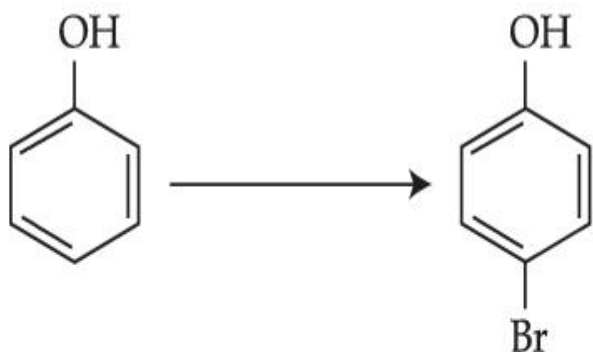


86435161296.

Question Number : 45 Question Id : 86435118234 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



(Major Product)

The given reaction can occur in the presence of :

- | | |
|---------------------------------|--|
| (a) Bromine water | (b) Br_2 in CS_2 , 273 K |
| (c) $\text{Br}_2/\text{FeBr}_3$ | (d) Br_2 in CHCl_3 , 273 K |

Choose the **correct** answer from the options given below :

Options :

86435161297. (a) and (c) only

86435161298. (b) and (d) only

86435161299. (b), (c) and (d) only

86435161300. (a), (b) and (d) only

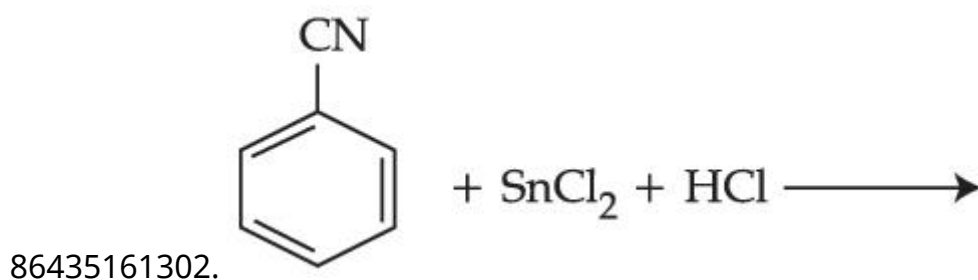
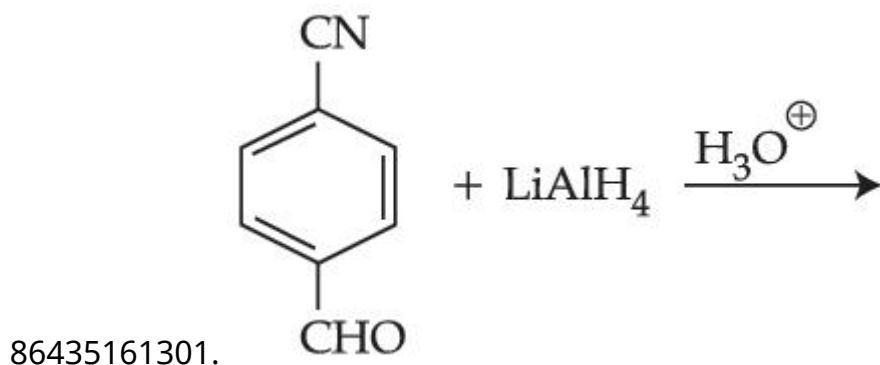
Question Number : 46 Question Id : 86435118235 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

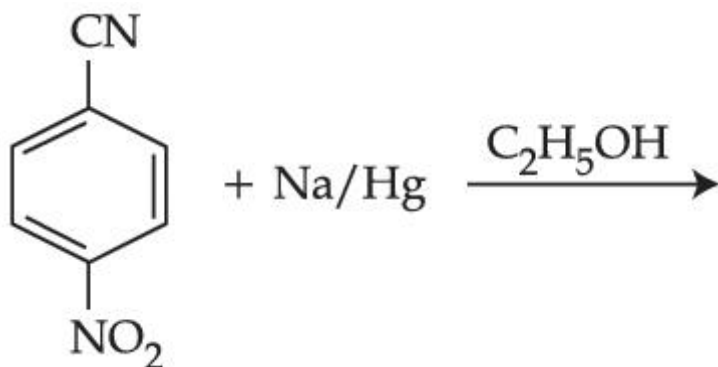
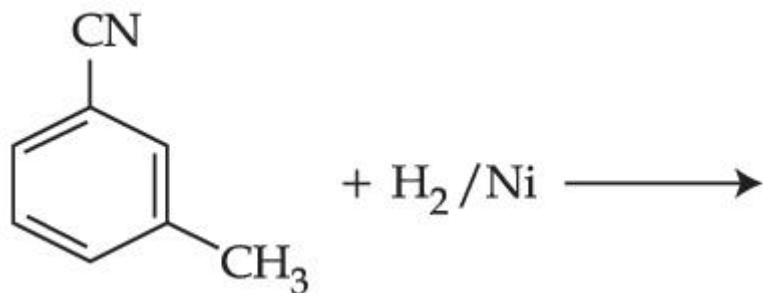
Correct Marks : 4 Wrong Marks : 1

Which one of the products of the following reactions **does not** react with Hinsberg reagent to form sulphonamide ?

Options :



86435161303.



86435161304.

Question Number : 47 Question Id : 86435118236 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 other is labelled as **Reason (R)**.

Assertion (A) : Gabriel phthalimide synthesis cannot be used to prepare aromatic primary amines.

Reason (R) : Aryl halides do not undergo nucleophilic substitution reaction.

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

Options :

86435161305. Both **(A)** and **(R)** are true and **(R)** is correct explanation of **(A)**.

86435161306. Both **(A)** and **(R)** are true but **(R)** is not the correct explanation of **(A)**.

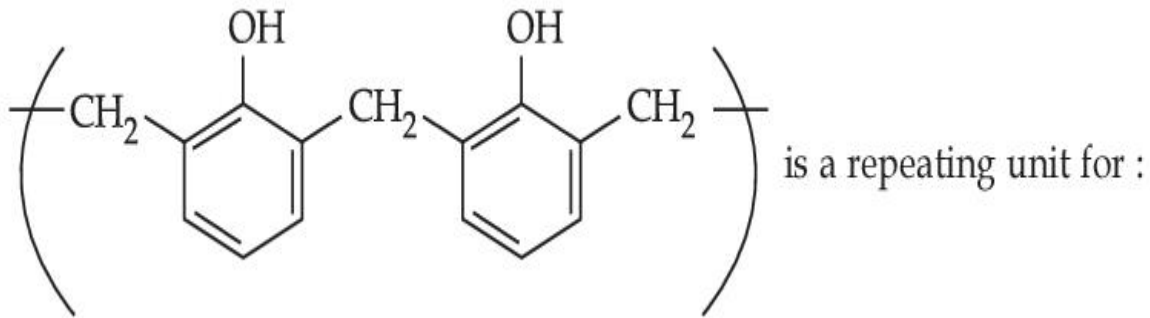
86435161307. **(A)** is true but **(R)** is false.

86435161308. (A) is false but (R) is true.

Question Number : 48 Question Id : 86435118237 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



Options :

86435161309. Neoprene

86435161310. Buna-N

86435161311. Novolac

86435161312. Acrilan

Question Number : 49 Question Id : 86435118238 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The water soluble protein is :

Options :

86435161313. Myosin

86435161314. Fibrin

86435161315. Collagen

86435161316. Albumin

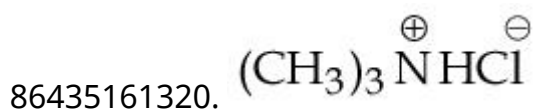
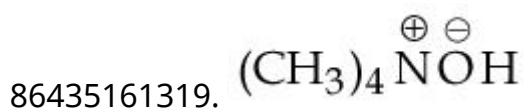
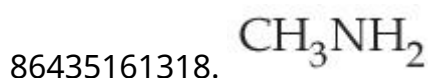
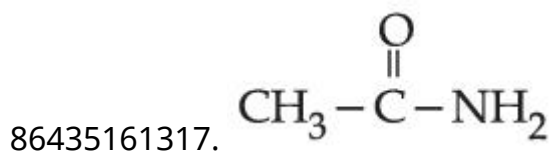
Question Number : 50 Question Id : 86435118239 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following compounds will liberate CO_2 , when treated with NaHCO_3 ?

Options :



Chemistry Section B

Section Id : 864351785

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 :	8643511012
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435118240 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

When 10 mL of an aqueous solution of Fe^{2+} ions was titrated in the presence of dil H_2SO_4 using diphenylamine indicator, 15 mL of 0.02 M solution of $\text{K}_2\text{Cr}_2\text{O}_7$ was required to get the end point. The molarity of the solution containing Fe^{2+} ions is $x \times 10^{-2}$ M. The value of x is _____. (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 : 52 Question Id : 86435118241 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A home owner uses $4.00 \times 10^3 \text{ m}^3$ of methane (CH_4) gas, (assume CH_4 is an ideal gas) in a year to heat his home. Under the pressure of 1.0 atm and 300 K, mass of gas used is $x \times 10^5$ g. The value of x is _____. (Nearest integer)

(Given $R = 0.083 \text{ L atm K}^{-1} \text{ mol}^{-1}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 Question Id : 86435118242 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A source of monochromatic radiation of wavelength 400 nm provides 1000 J of energy in 10 seconds. When this radiation falls on the surface of sodium, $x \times 10^{20}$ electrons are ejected per second. Assume that wavelength 400 nm is sufficient for ejection of electron from the surface of sodium metal. The value of x is _____. (Nearest integer)

($h = 6.626 \times 10^{-34}$ Js)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

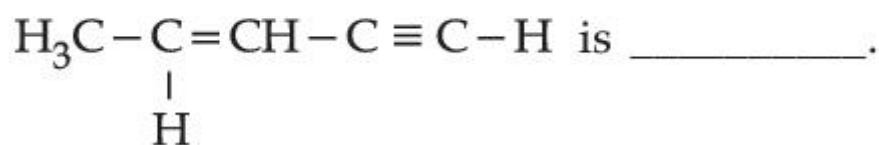
Possible Answers :

1

Question Number : 54 Question Id : 86435118243 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of sigma bonds in



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 : 86435118244 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

At 298 K, the enthalpy of fusion of a solid (X) is 2.8 kJ mol^{-1} and the enthalpy of vaporisation of the liquid (X) is 98.2 kJ mol^{-1} . The enthalpy of sublimation of the substance (X) in kJ mol^{-1} is _____. (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 : 56 Question Id : 86435118245 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

CO_2 gas is bubbled through water during a soft drink manufacturing process at 298 K. If CO_2 exerts a partial pressure of 0.835 bar then $x \text{ m mol}$ of CO_2 would dissolve in 0.9 L of water. The value of x is _____. (Nearest integer)
(Henry's law constant for CO_2 at 298 K is $1.67 \times 10^3 \text{ bar}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

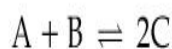
Possible Answers :

1

Question Number : 57 Question Id : 86435118246 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

For the reaction



the value of equilibrium constant is 100 at 298 K. If the initial concentration of all the three species is 1 M each, then the equilibrium concentration of C is $x \times 10^{-1}$ M. The value of x is _____. (Nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

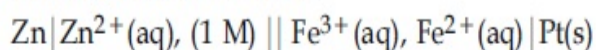
Possible Answers :

1

Question Number : 58 Question Id : 86435118247 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Consider the cell at 25°C



The fraction of total iron present as Fe^{3+} ion at the cell potential of 1.500 V is $x \times 10^{-2}$. The value of x is _____. (Nearest integer)

(Given : $E_{\text{Fe}^{3+}/\text{Fe}^{2+}}^0 = 0.77 \text{ V}$, $E_{\text{Zn}^{2+}/\text{Zn}}^0 = -0.76 \text{ V}$)

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 : 86435118248 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Consider the complete combustion of butane, the amount of butane utilized to produce 72.0 g of water is _____ $\times 10^{-1}$ g. (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 : 60 Question Id : 86435118249 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Three moles of AgCl get precipitated when one mole of an octahedral co-ordination compound with empirical formula $\text{CrCl}_3 \cdot 3\text{NH}_3 \cdot 3\text{H}_2\text{O}$ reacts with excess of silver nitrate. The number of chloride ions satisfying the secondary valency of the metal ion is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1