

Mark As Answered Required? : Yes
Sub-Section Number : 1
Sub-Section Id : 7081911150
Question Shuffling Allowed : Yes

Question Number : 31 Question Id : 70819119954 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The orbital having two radial as well as two angular nodes is :

Options :

70819165011. 3p

70819165012. 4d

70819165013. 4f

70819165014. 5d

Question Number : 32 Question Id : 70819119955 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 : Dipole-dipole interactions are the only non-covalent interactions, resulting in hydrogen bond formation.

Reason R : Fluorine is the most electronegative element and hydrogen bonds in HF are symmetrical.

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

Options :

70819165015. Both A and R are true and R is the correct explanation of A

70819165016. Both A and R are true but R is NOT the correct explanation of A

70819165017. A is true but R is false

70819165018. A is false but R is true

Question Number : 33 Question Id : 70819119956 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
Electronic configuration of elements	$\Delta_f H$ in kJ mol^{-1}
(a) $1s^2 2s^2$	(i) 801
(b) $1s^2 2s^2 2p^4$	(ii) 899
(c) $1s^2 2s^2 2p^3$	(iii) 1314
(d) $1s^2 2s^2 2p^1$	(iv) 1402

Choose the most appropriate answer from the options given below :

Options :

70819165019. (a) \rightarrow (i), (b) \rightarrow (iv), (c) \rightarrow (iii), (d) \rightarrow (ii)

70819165020. (a) \rightarrow (iv), (b) \rightarrow (i), (c) \rightarrow (ii), (d) \rightarrow (iii)

70819165021. (a) \rightarrow (ii), (b) \rightarrow (iii), (c) \rightarrow (iv), (d) \rightarrow (i)

70819165022. (a) \rightarrow (i), (b) \rightarrow (iii), (c) \rightarrow (iv), (d) \rightarrow (ii)

Question Number : 34 Question Id : 70819119957 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List-I with List-II.

List-I (Ore)	List-II (Element Present)
(a) Kernite	(i) Tin
(b) Cassiterite	(ii) Boron
(c) Calamine	(iii) Fluorine
(d) Cryolite	(iv) Zinc

Choose the most appropriate answer from the options given below :

Options :

70819165023. (a) → (ii), (b) → (i), (c) → (iv), (d) → (iii)

70819165024. (a) → (iii), (b) → (i), (c) → (ii), (d) → (iv)

70819165025. (a) → (ii), (b) → (iv), (c) → (i), (d) → (iii)

70819165026. (a) → (i), (b) → (iii), (c) → (iv), (d) → (ii)

Question Number : 35 Question Id : 70819119958 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Statements about heavy water are given below.

- A. Heavy water is used in exchange reactions for the study of reaction mechanisms.
- B. Heavy water is prepared by exhaustive electrolysis of water.
- C. Heavy water has higher boiling point than ordinary water.
- D. Viscosity of H_2O is greater than D_2O .

Choose the most appropriate answer from the options given below :

Options :

70819165027. A and B only

70819165028. A and C only

70819165029. A and D only

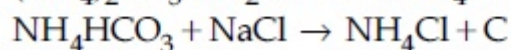
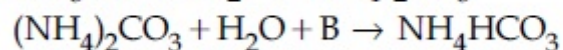
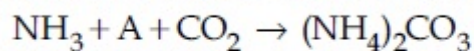
70819165030. A, B and C only

Question Number : 36 Question Id : 70819119959 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Find A, B and C in the following reactions :



Options :

70819165031. A – H₂O ; B – O₂ ; C – Na₂CO₃

70819165032. A – H₂O ; B – O₂ ; C – NaHCO₃

70819165033. A – H₂O ; B – CO₂ ; C – NaHCO₃

70819165034. A – O₂ ; B – CO₂ ; C – Na₂CO₃

Question Number : 37 Question Id : 70819119960 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Compound A used as a strong oxidizing agent is amphoteric in nature. It is the part of lead storage batteries. Compound A is :

Options :

70819165035. PbO

70819165036. PbO₂

70819165037. Pb₃O₄

70819165038. PbSO_4

Question Number : 38 Question Id : 70819119961 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following lanthanoids does not form MO_2 ?

[M is lanthanoid metal]

Options :

70819165039. Nd

70819165040. Dy

70819165041. Pr

70819165042. Yb

Question Number : 39 Question Id : 70819119962 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The presence of ozone in troposphere :

Options :

70819165043. protects us from the UV radiation

70819165044. protects us from the X-ray radiation

70819165045. generates photochemical smog

70819165046. protects us from greenhouse effect

Question Number : 40 Question Id : 70819119963 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : A mixture of chloroform and aniline can be separated by simple distillation.

Statement II : When separating aniline from a mixture of aniline and water by steam distillation aniline boils below its boiling point.

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

Options :

70819165047. Both Statement I and Statement II are true

70819165048. Both Statement I and Statement II are false

70819165049. Statement I is true but Statement II is false

70819165050. Statement I is false but Statement II is true

Question Number : 41 Question Id : 70819119964 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is 'a' FALSE statement ?

Options :

70819165051. Carius tube is used in the estimation of sulphur in an organic compound.

70819165052. Carius method is used for the estimation of nitrogen in an organic compound.

70819165053. Kjeldahl's method is used for the estimation of nitrogen in an organic compound.

Phosphoric acid produced on oxidation of phosphorus present in an organic compound is precipitated as $Mg_2P_2O_7$ by adding magnesia mixture.

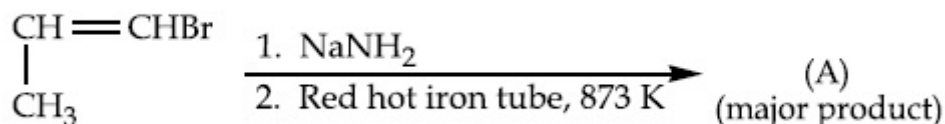
70819165054.

Question Number : 42 Question Id : 70819119965 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

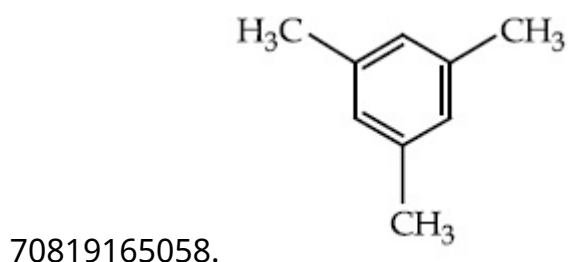
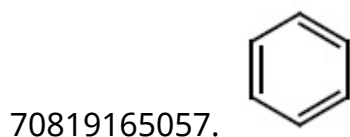
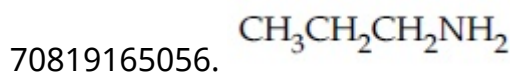
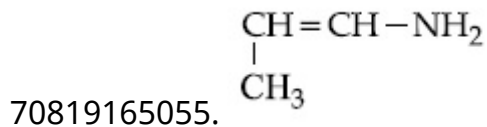
Correct Marks : 4 Wrong Marks : 1

For the given reaction :



What is 'A' ?

Options :

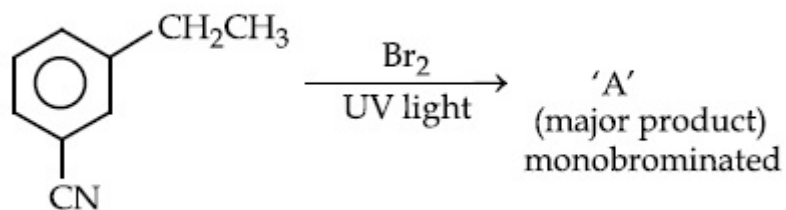


Question Number : 43 Question Id : 70819119966 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

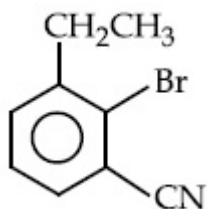
Correct Marks : 4 Wrong Marks : 1

For the given reaction :

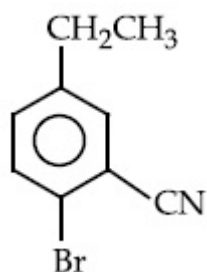


What is 'A'?

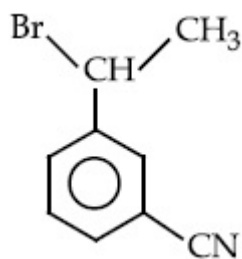
Options :



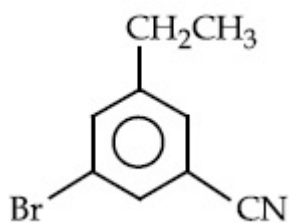
70819165059.



70819165060.



70819165061.

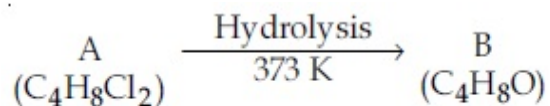


70819165062.

Question Number : 44 Question Id : 70819119967 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



B reacts with Hydroxyl amine but does not give Tollen's test. Identify A and B.

Options :

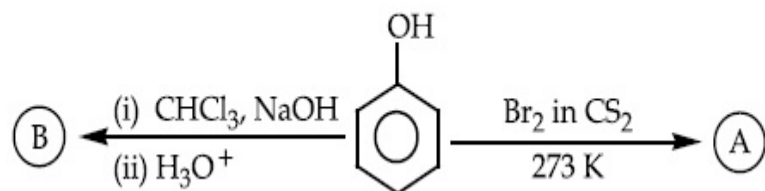
70819165063. 1,1-Dichlorobutane and Butanal
70819165064. 2,2-Dichlorobutane and Butanal
70819165065. 1,1-Dichlorobutane and 2-Butanone
70819165066. 2,2-Dichlorobutane and Butan-2-one

Question Number : 45 Question Id : 70819119968 Question Type : MCQ Option Shuffling : Yes

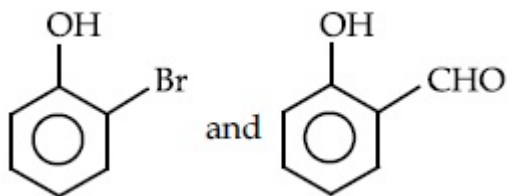
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

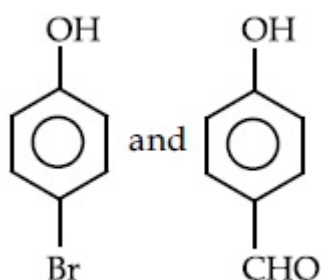
Identify the major products A and B respectively in the following reactions of phenol :



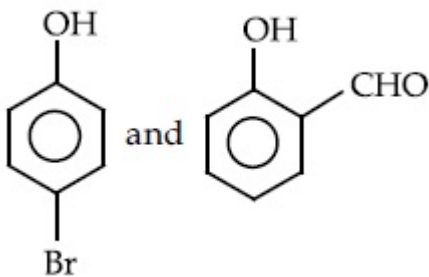
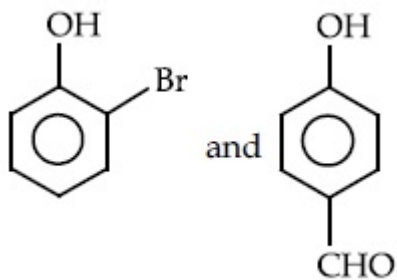
Options :



70819165067.



70819165068.



**Question Number : 46 Question Id : 70819119969 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : *o*-Nitrophenol is steam volatile due to intramolecular hydrogen bonding.

Statement II : *o*-Nitrophenol has high melting due to hydrogen bonding.

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

Options :

70819165071. Both Statement I and Statement II are true

70819165072. Both Statement I and Statement II are false

70819165073. Statement I is true but Statement II is false

70819165074. Statement I is false but Statement II is true

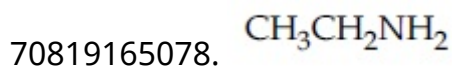
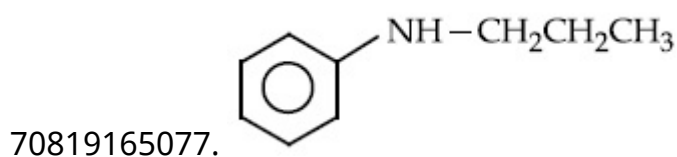
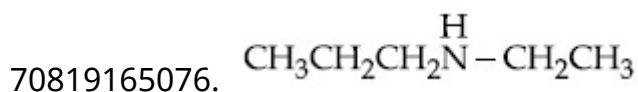
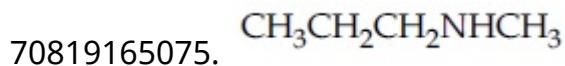
Question Number : 47 Question Id : 70819119970 Question Type : MCQ Op

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An amine on reaction with benzenesulphonyl chloride produces a compound insoluble in alkaline solution. This amine can be prepared by ammonolysis of ethyl chloride. The correct structure of amine is :

Options :



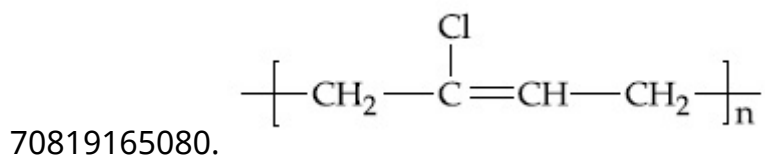
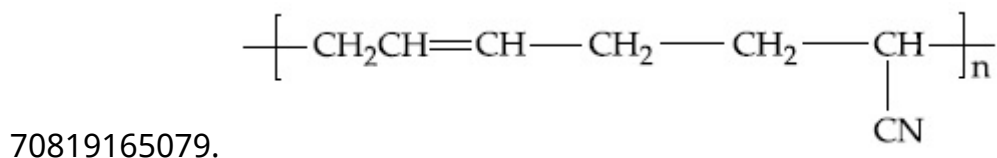
Question Number : 48 Question Id : 70819119971 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

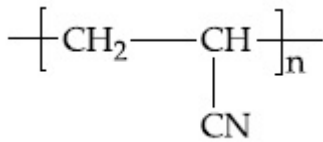
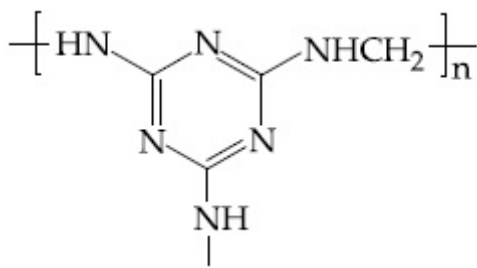
Correct Marks : 4 Wrong Marks : 1

The structure of Neoprene is :

Options :



70819165081.



70819165082.

Question Number : 49 Question Id : 70819119972 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following vitamin is helpful in delaying the blood clotting ?

Options :

70819165083. Vitamin B

70819165084. Vitamin C

70819165085. Vitamin E

70819165086. Vitamin K

Question Number : 50 Question Id : 70819119973 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

On treating a compound with warm dil. H_2SO_4 , gas X is evolved which turns $\text{K}_2\text{Cr}_2\text{O}_7$ paper acidified with dil. H_2SO_4 to a green compound Y. X and Y respectively are :

Options :

70819165087. $\text{X} = \text{SO}_3, \text{Y} = \text{Cr}_2(\text{SO}_4)_3$

70819165088. $X = \text{SO}_2$, $Y = \text{Cr}_2\text{O}_3$

70819165089. $X = \text{SO}_3$, $Y = \text{Cr}_2\text{O}_3$

70819165090. $X = \text{SO}_2$, $Y = \text{Cr}_2(\text{SO}_4)_3$

Chemistry Section B

Section Id :	708191871
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 :	7081911151
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 70819119974 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of significant figures in 50000.020×10^{-3} 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 : 52 Question Id : 70819119975 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A certain gas obeys $P(V_m - b) = RT$. The value of $\left(\frac{\partial Z}{\partial P}\right)_T$ is $\frac{xb}{RT}$. The value of x is _____.

(Integer answer) (Z : compressibility factor)

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 : 70819119976 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

For a chemical reaction $A + B \rightleftharpoons C + D$

($\Delta_r H^\ominus = 80 \text{ kJ mol}^{-1}$) the entropy change $\Delta_r S^\ominus$ depends on the temperature T(in K) as $\Delta_r S^\ominus = 2T \text{ (J K}^{-1}\text{mol}^{-1}\text{)}$.

Minimum temperature at which it will become spontaneous is _____ K. (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 : 54 Question Id : 70819119977 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

224 mL of $\text{SO}_{2(g)}$ at 298 K and 1 atm is passed through 100 mL of 0.1 M NaOH solution. The non-volatile solute produced is dissolved in 36 g of water. The lowering of vapour pressure of solution (assuming the solution is dilute) ($P_{(\text{H}_2\text{O})}^\circ = 24 \text{ mm of Hg}$) is $x \times 10^{-2}$ mm of Hg, the value of x is _____. (Integer answer)

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 : 70819119978 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A homogeneous ideal gaseous reaction $\text{AB}_{2(g)} \rightleftharpoons \text{A}_{(g)} + 2\text{B}_{(g)}$ is carried out in a 25 litre flask at 27°C. The initial amount of AB_2 was 1 mole and the equilibrium pressure was 1.9 atm. The value of K_p is $x \times 10^{-2}$. The value of x is _____. (Integer answer)
[$R = 0.08206 \text{ dm}^3\text{atm K}^{-1} \text{ mol}^{-1}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

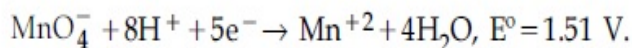
Possible Answers :

5 to 5.001

Question Number : 56 Question Id : 70819119979 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Consider the following reaction



The quantity of electricity required in Faraday to reduce five moles of MnO_4^- is _____.
(Integer answer)

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 : 70819119980 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

An exothermic reaction $X \rightarrow Y$ has an activation energy 30 kJ mol^{-1} . If energy change ΔE during the reaction is -20 kJ , then the activation energy for the reverse reaction in kJ is _____. (Integer answer)

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 : 70819119981 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

3.12 g of oxygen is adsorbed on 1.2 g of platinum metal. The volume of oxygen adsorbed per gram of the adsorbent at 1 atm and 300 K in L is _____.

[$R = 0.0821 \text{ L atm K}^{-1} \text{ mol}^{-1}$]

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 :** 70819119982 **Question Type :** SA

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

Dichromate ion is treated with base, the oxidation number of Cr in the product formed 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 :** 70819119983 **Question Type :** SA

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

Number of bridging CO ligands in $[\text{Mn}_2(\text{CO})_{10}]$ 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