

Chemistry Section A

Section Id :	864351754
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 :	864351981
Question Shuffling Allowed :	Yes

Question Number : 31 Question Id : 86435117770 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 (Hybrid Orbitals)
(a) SF_4	(i) sp^3d^2
(b) IF_5	(ii) d^2sp^3
(c) NO_2^+	(iii) sp^3d
(d) NH_4^+	(iv) sp^3
	(v) sp

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

Options :

86435159891. (a)-(i), (b)-(ii), (c)-(v) and (d)-(iii)

86435159892. (a)-(iii), (b)-(i), (c)-(v) and (d)-(iv)

86435159893. (a)-(ii), (b)-(i), (c)-(iv) and (d)-(v)

86435159894. (a)-(iv), (b)-(iii), (c)-(ii) and (d)-(v)

Question Number : 32 Question Id : 86435117771 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following 0.06 M aqueous solutions has lowest freezing point ?

Options :

86435159895. $\text{Al}_2(\text{SO}_4)_3$

86435159896. $\text{C}_6\text{H}_{12}\text{O}_6$

86435159897. KI

86435159898. K_2SO_4

**Question Number : 33 Question Id : 86435117772 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

When silver nitrate solution is added to potassium iodide solution then the sol produced is :

Options :

86435159899. AgI/I^-

86435159900. AgI/Ag^+

86435159901. $AgNO_3/NO_3^-$

86435159902. KI/NO_3^-

**Question Number : 34 Question Id : 86435117773 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which one of the following statements for D.I. Mendeleeff, is **incorrect** ?

Options :

86435159903. He authored the textbook - Principles of Chemistry.

86435159904. He invented accurate barometer.

86435159905. At the time, he proposed Periodic Table of elements structure of atom was known.

86435159906. Element with atomic number 101 is named after him.

**Question Number : 35 Question Id : 86435117774 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Sulphide ion is soft base and its ores are common for metals.

(a) Pb (b) Al (c) Ag (d) Mg

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

Options :

86435159907. (a) and (b) only

86435159908. (a) and (c) only

86435159909. (c) and (d) only

86435159910. (a) and (d) only

**Question Number : 36 Question Id : 86435117775 Question Type : MCQ Option Shuffling : Yes
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Isotope(s) of hydrogen which emits low energy β^- particles with $t_{1/2}$ value > 12 years is/are :

Options :

86435159911. Protium

86435159912. Deuterium

86435159913. Deuterium and Tritium

86435159914. Tritium

Question Number : 37 Question Id : 86435117776 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II :

List - I (Elements)	List - II (Properties)
(a) Ba	(i) Organic solvent soluble compounds
(b) Ca	(ii) Outer electronic configuration $6s^2$
(c) Li	(iii) Oxalate insoluble in water
(d) Na	(iv) Formation of very strong monoacidic base

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

Options :

86435159915. (a)-(iv), (b)-(i), (c)-(ii) and (d)-(iii)

86435159916. (a)-(i), (b)-(iv), (c)-(ii) and (d)-(iii)

86435159917. (a)-(ii), (b)-(iii), (c)-(i) and (d)-(iv)

86435159918. (a)-(iii), (b)-(ii), (c)-(iv) and (d)-(i)

Question Number : 38 Question Id : 86435117777 Question Type : MCC

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following group-15 hydride is the strongest reducing agent ?

Options :

86435159919. PH_3

86435159920. AsH_3

86435159921. SbH_3

86435159922. BiH_3

Question Number : 39 Question Id : 86435117778 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are the statements about diborane.

- (a) Diborane is prepared by the oxidation of NaBH_4 with I_2 .
- (b) Each boron atom is in sp^2 hybridized state.
- (c) Diborane has one bridged 3 centre-2-electron bond.
- (d) Diborane is a planar molecule.

The option with **correct** statement(s) is :

Options :

86435159923. (a) and (b) only

86435159924. (c) only

86435159925. (c) and (d) only

86435159926. (a) only

Question Number : 40 Question Id : 86435117779 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The set having ions which are coloured and paramagnetic both is :

Options :

86435159927. $\text{Cu}^{2+}, \text{Cr}^{3+}, \text{Sc}^{+}$

86435159928. $\text{Cu}^{+}, \text{Zn}^{2+}, \text{Mn}^{4+}$

86435159929. $\text{Sc}^{3+}, \text{V}^{5+}, \text{Ti}^{4+}$

86435159930. $\text{Ni}^{2+}, \text{Mn}^{7+}, \text{Hg}^{2+}$

Question Number : 41 Question Id : 86435117780 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The water having more dissolved O_2 is :

Options :

86435159931. polluted water

86435159932. water at 4°C

86435159933. water at 80°C

86435159934. boiling water

Question Number : 42 Question Id : 86435117781 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which purification technique is used for high boiling organic liquid compound (decomposes near its boiling point) ?

Options :

86435159935. Fractional distillation

86435159936. Simple distillation

86435159937. Steam distillation

86435159938. Reduced pressure distillation

Question Number : 43 Question Id : 86435117782 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

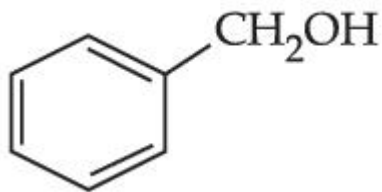
Which one of the following compounds does not exhibit resonance ?

Options :

86435159939. $\text{CH}_3\text{CH}_2\text{OCH}=\text{CH}_2$

86435159940. $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}_2\text{NH}_2$

86435159941. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CONH}_2$



86435159942.

Question Number : 44 Question Id : 86435117783 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following molecules does not show stereo isomerism ?

Options :

86435159943. 3-Methylhex-1-ene

86435159944. 4-Methylhex-1-ene

86435159945. 3-Ethylhex-3-ene

86435159946. 3,4-Dimethylhex-3-ene

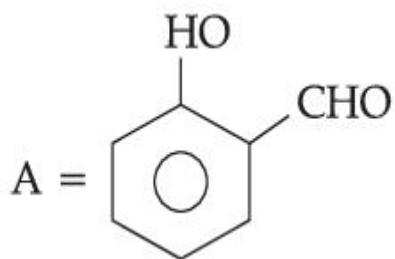
Question Number : 45 Question Id : 86435117784 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

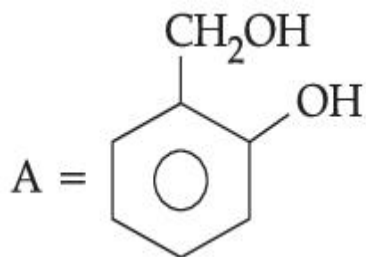
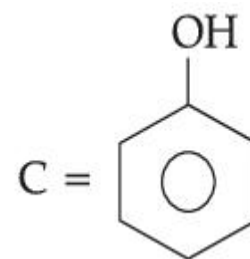
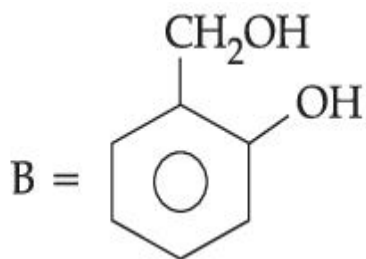
Correct Marks : 4 Wrong Marks : 1

An organic compound A ($\text{C}_6\text{H}_6\text{O}$) gives dark green colouration with ferric chloride. On treatment with CHCl_3 and KOH , followed by acidification gives compound B. Compound B can also be obtained from compound C on reaction with pyridinium chlorochromate (PCC). Identify A, B and C.

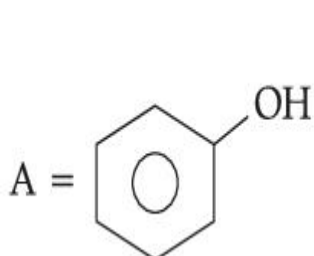
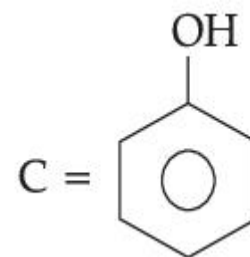
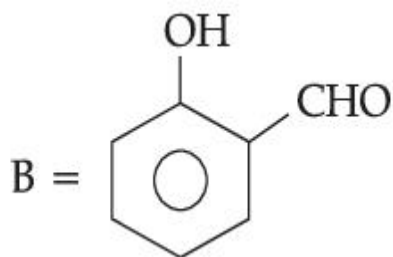
Options :



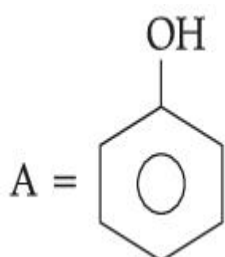
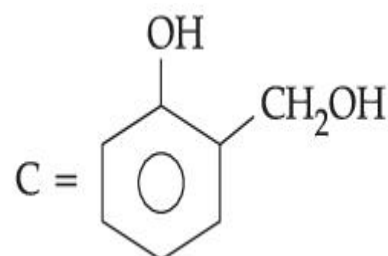
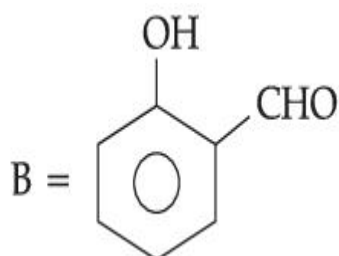
86435159947.



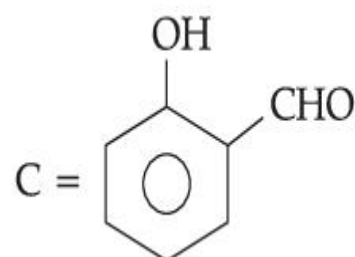
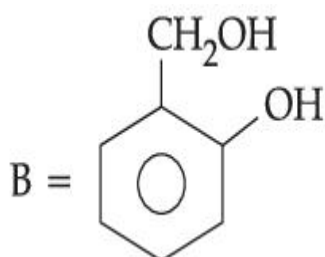
86435159948.



86435159949.



86435159950.



Question Number : 46 Question Id : 86435117785 Question Type : MCQ Option Shuffling : Yes

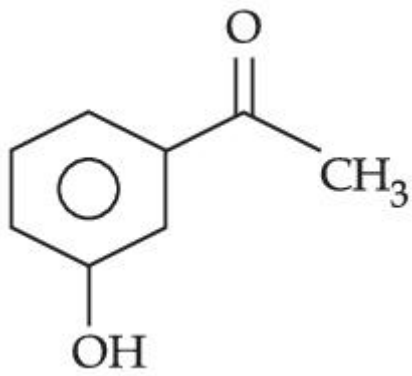
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

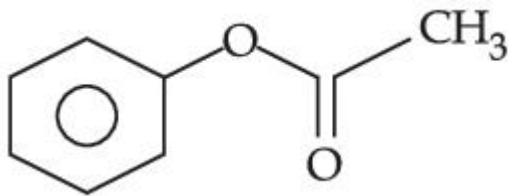
Which one of the following compounds will provide a tertiary alcohol on reaction with excess of CH_3MgBr followed by hydrolysis ?

Options :

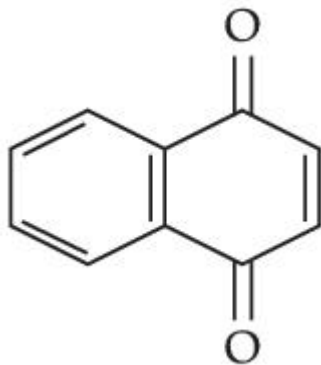
86435159951.



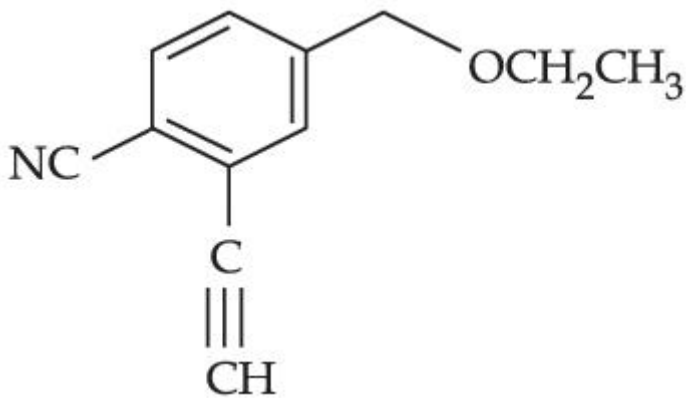
86435159952.



86435159953.



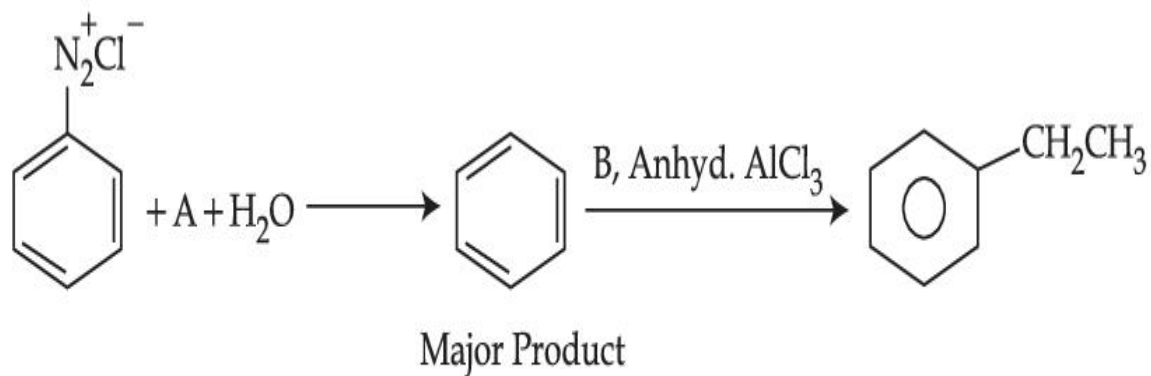
86435159954.



Question Number : 47 Question Id : 86435117786 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1



In the chemical reactions given above A and B respectively are :

Options :

86435159955. H_3PO_2 and $\text{CH}_3\text{CH}_2\text{OH}$

86435159956. $\text{CH}_3\text{CH}_2\text{OH}$ and H_3PO_2

86435159957. H_3PO_2 and $\text{CH}_3\text{CH}_2\text{Cl}$

86435159958. $\text{CH}_3\text{CH}_2\text{Cl}$ and H_3PO_2

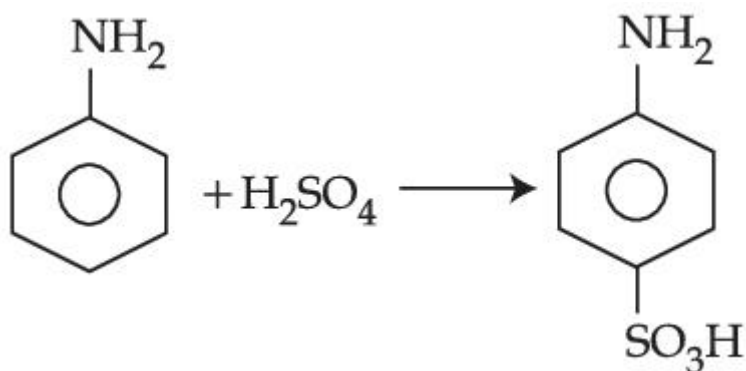
Question Number : 48 Question Id : 86435117787 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

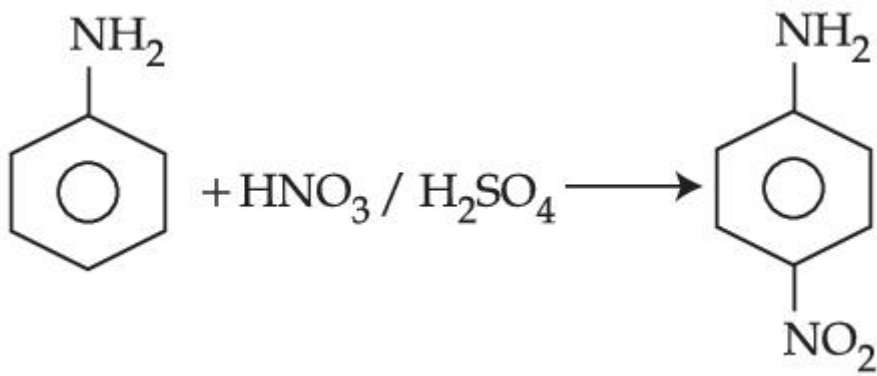
Correct Marks : 4 Wrong Marks : 1

Which one of the following reactions does not occur ?

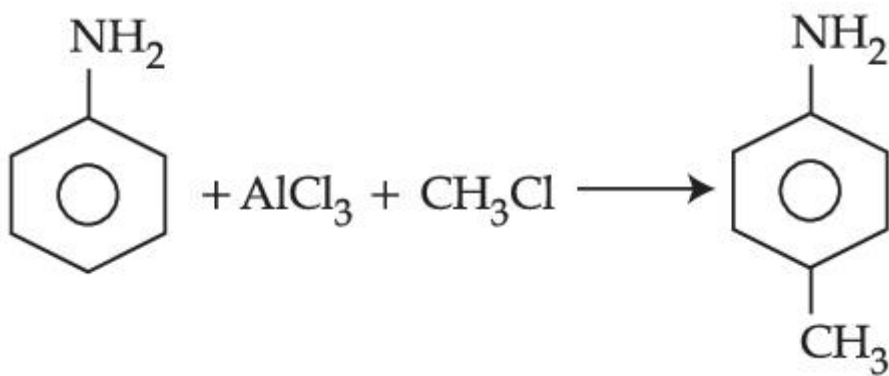
Options :



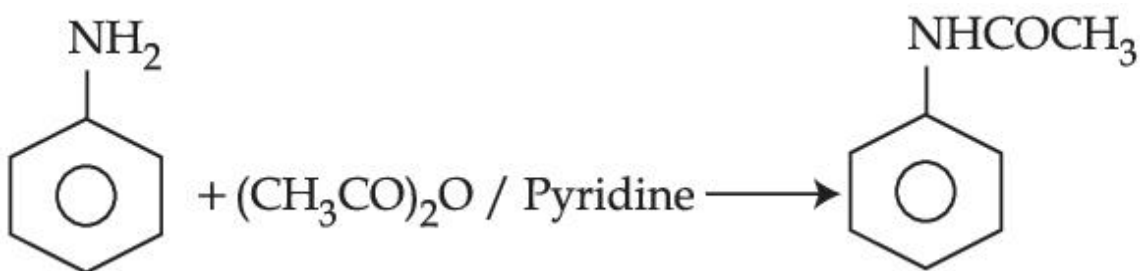
86435159959.



86435159960.



86435159961.



86435159962.

Question Number : 49 Question Id : 86435117788 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

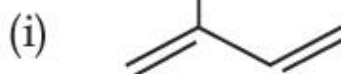
Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II :

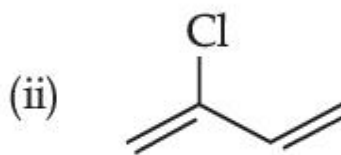
List - I

List - II

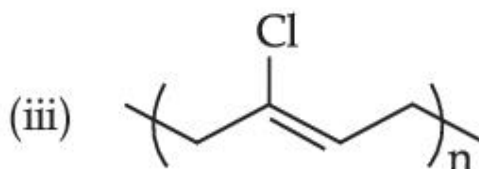
(a) Chloroprene



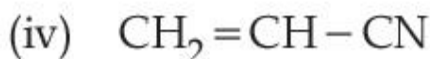
(b) Neoprene



(c) Acrylonitrile



(d) Isoprene



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

Options :

86435159963. (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

86435159964. (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

86435159965. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

86435159966. (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)

Question Number : 50 Question Id : 86435117789 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Thiamine and pyridoxine are also known respectively as :

Options :

86435159967. Vitamin B₆ and Vitamin B₂

86435159968. Vitamin B₁ and Vitamin B₆

86435159969. Vitamin E and Vitamin B₂

86435159970. Vitamin B₂ and Vitamin E

Chemistry Section B

Section Id :	864351755
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 :	864351982
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435117790 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

If the concentration of glucose (C₆H₁₂O₆) in blood is 0.72 g L⁻¹, the molarity of glucose in blood is _____ × 10⁻³ M. (Nearest integer)

(Given : Atomic mass of C = 12, H = 1, O = 16 u)

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 : 86435117791 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A copper complex crystallising in a CCP lattice with a cell edge of 0.4518 nm has been revealed by employing X-ray diffraction studies. The density of a copper complex is found to be 7.62 g cm^{-3} . The molar mass of copper complex is _____ g mol^{-1} . (Nearest integer)

[Given : $N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$]

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 : 86435117792 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Number of electrons that Vanadium ($Z=23$) has in p-orbitals is equal to _____.

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 : 86435117793 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

If the standard molar enthalpy change for combustion of graphite powder is $-2.48 \times 10^2 \text{ kJ mol}^{-1}$, the amount of heat generated on combustion of 1 g of graphite powder is _____ kJ. (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 : 86435117794 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Value of K_p for the equilibrium reaction $\text{N}_2\text{O}_{4(g)} \rightleftharpoons 2\text{NO}_{2(g)}$ at 288 K is 47.9. The K_c for this reaction at same temperature is _____. (Nearest integer)

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

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

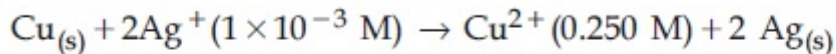
Possible Answers :

1

Question Number : 56 Question Id : 86435117795 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Assume a cell with the following reaction



$$E_{\text{cell}}^{\ominus} = 2.97 \text{ V}$$

E_{cell} for the above reaction is _____ V. (Nearest integer)

[Given : $\log 2.5 = 0.3979$, $T = 298 \text{ K}$]

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

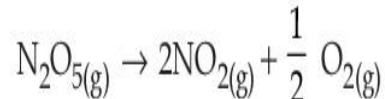
Text Areas : PlainText

Possible Answers :

1

Question Number : 57 **Question Id :** 86435117796 **Question Type :** SA

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



In the above first order reaction the initial concentration of N_2O_5 is $2.40 \times 10^{-2} \text{ mol L}^{-1}$ at 318 K. The concentration of N_2O_5 after 1 hour was $1.60 \times 10^{-2} \text{ mol L}^{-1}$. The rate constant of the reaction at 318 K is _____ $\times 10^{-3} \text{ min}^{-1}$. (Nearest integer)

[Given : $\log 3 = 0.477$, $\log 5 = 0.699$]

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 :** 86435117797 **Question Type :** SA

Correct Marks : 4 Wrong Marks : 0

The total number of unpaired electrons present in $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$ and $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ is _____.

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 : 86435117798 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The number of acyclic structural isomers (including geometrical isomers) for pentene are _____.

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 : 86435117799 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Methylation of 10 g of benzene gave 9.2 g of toluene. Calculate the percentage yield of toluene _____. (Nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1