

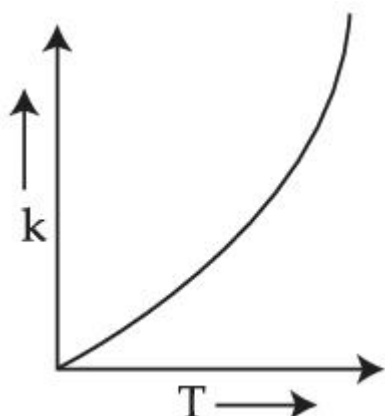
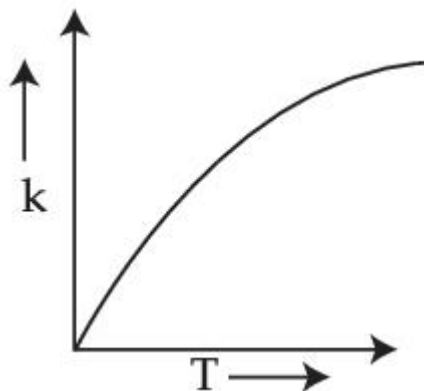
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	20
<b>Number of Questions to be attempted :</b>	20
<b>Section Marks :</b>	80
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	8643511233
<b>Question Shuffling Allowed :</b>	Yes

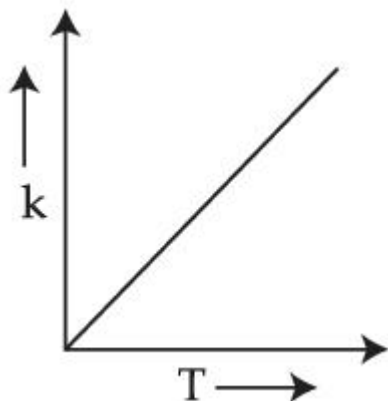
**Question Number : 31 Question Id : 86435121550 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No**

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

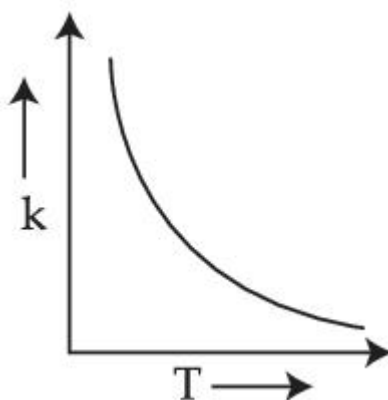
Which one of the following given graphs represents the variation of rate constant ( $k$ ) with temperature ( $T$ ) for an endothermic reaction ?

**Options :**





86435171233.



86435171234.

Question Number : 32 Question Id : 86435121551 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

List - I

(Colloid Preparation Method)

- (a) Hydrolysis
- (b) Reduction
- (c) Oxidation
- (d) Double Decomposition

List - II

(Chemical Reaction)

- (i)  $2\text{AuCl}_3 + 3\text{HCHO} + 3\text{H}_2\text{O} \rightarrow 2\text{Au}(\text{sol}) + 3\text{HCOOH} + 6\text{HCl}$
- (ii)  $\text{As}_2\text{O}_3 + 3\text{H}_2\text{S} \rightarrow \text{As}_2\text{S}_3(\text{sol}) + 3\text{H}_2\text{O}$
- (iii)  $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 3\text{S}(\text{sol}) + 2\text{H}_2\text{O}$
- (iv)  $\text{FeCl}_3 + 3\text{H}_2\text{O} \rightarrow \text{Fe}(\text{OH})_3(\text{sol}) + 3\text{HCl}$

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

Options :

86435171235. (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

86435171236. (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)

86435171237. (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

86435171238. (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

**Question Number : 33 Question Id : 86435121552 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Identify the element for which electronic configuration in +3 oxidation state is  $[\text{Ar}]3d^5$ :

**Options :**

86435171239. Mn

86435171240. Fe

86435171241. Ru

86435171242. Co

**Question Number : 34 Question Id : 86435121553 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Calamine and Malachite, respectively, are the ores of :

**Options :**

86435171243. Copper and Iron

86435171244. Zinc and Copper

86435171245. Aluminium and Zinc

86435171246. Nickel and Aluminium

**Question Number : 35 Question Id : 86435121554 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Hydrogen peroxide reacts with iodine in basic medium to give :

**Options :**

86435171247.  $\text{IO}_3^-$

86435171248.  $\text{I}^-$

86435171249.  $\text{IO}^-$

86435171250.  $\text{IO}_4^-$

**Question Number : 36 Question Id : 86435121555 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Number of paramagnetic oxides among the following given oxides is \_\_\_\_\_.

$\text{Li}_2\text{O}$ ,  $\text{CaO}$ ,  $\text{Na}_2\text{O}_2$ ,  $\text{KO}_2$ ,  $\text{MgO}$  and  $\text{K}_2\text{O}$

**Options :**

86435171251. 3

86435171252. 2

86435171253. 1

86435171254. 0

**Question Number : 37 Question Id : 86435121556 Question Type : MCQ Option Shuffling : Yes  
Is Question Mandatory : No**

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

The oxide **without** nitrogen-nitrogen bond is :

**Options :**

86435171255.  $\text{N}_2\text{O}$

86435171256.  $\text{N}_2\text{O}_3$

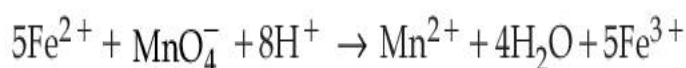
86435171257.  $\text{N}_2\text{O}_4$

86435171258.  $\text{N}_2\text{O}_5$

**Question Number : 38 Question Id : 86435121557 Question Type : MCQ Option Shuffling : Yes  
Is Question Mandatory : No**

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

In the given chemical reaction, colors of the  $\text{Fe}^{2+}$  and  $\text{Fe}^{3+}$  ions, are respectively :



**Options :**

86435171259. Yellow, Orange

86435171260. Green, Yellow

86435171261. Green, Orange

86435171262. Yellow, Green

**Question Number : 39 Question Id : 86435121558 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

The Crystal Field Stabilization Energy (CFSE) and magnetic moment (spin-only) of an octahedral aqua complex of a metal ion ( $M^{Z+}$ ) are  $-0.8 \Delta_0$  and 3.87 BM, respectively.

Identify ( $M^{Z+}$ ) :

**Options :**

86435171263.  $Co^{2+}$

86435171264.  $V^{3+}$

86435171265.  $Mn^{4+}$

86435171266.  $Cr^{3+}$

**Question Number : 40 Question Id : 86435121559 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Water sample is called cleanest on the basis of which one of the BOD values given

**Options :**

86435171267. 3 ppm

86435171268. 11 ppm

86435171269. 15 ppm

86435171270. 21 ppm

**Question Number : 41 Question Id : 86435121560 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

Experimentally reducing a functional group **cannot** be done by which one of the following reagents ?

**Options :**

86435171271. Pd-C/H<sub>2</sub>

86435171272. Pt-C/H<sub>2</sub>

86435171273. Zn/H<sub>2</sub>O

86435171274. Na/H<sub>2</sub>

**Question Number : 42 Question Id : 86435121561 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

The stereoisomers that are formed by electrophilic addition of bromine to *trans*-but-2-ene is/are :

**Options :**

86435171275. 2 identical mesomers

86435171276. 2 enantiomers

86435171277. 1 racemic and 2 enantiomers

86435171278. 2 enantiomers and 2 mesomers

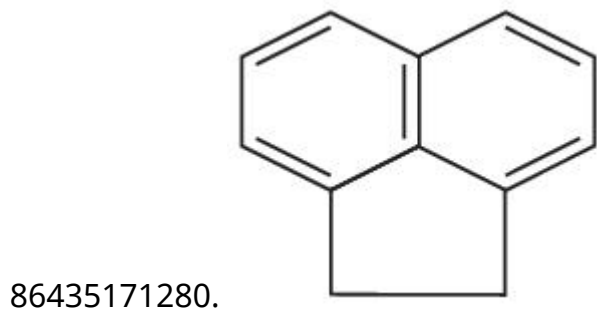
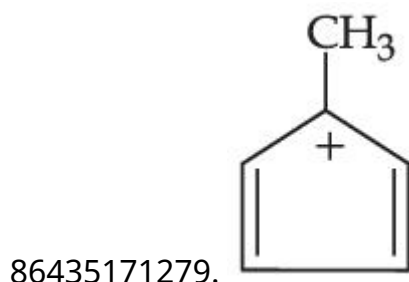
**Question Number : 43 Question Id : 86435121562 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

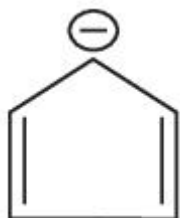
Which one of the following compounds is aromatic in nature ?

**Options :**

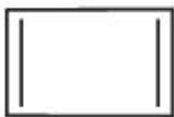


86435171281.





86435171282.

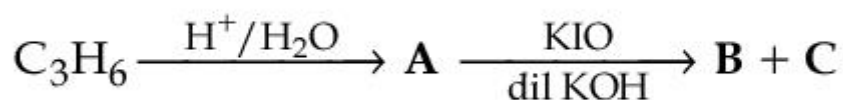


Question Number : 44 Question Id : 86435121563 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the following sequence of reactions,



The compounds **B** and **C** respectively are :

Options :

86435171283.  $\text{CH}_3\text{I}$ ,  $\text{HCOOK}$

86435171284.  $\text{CHI}_3$ ,  $\text{CH}_3\text{COOK}$

86435171285.  $\text{Cl}_3\text{COOK}$ ,  $\text{CH}_3\text{I}$

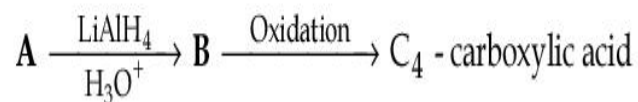
86435171286.  $\text{Cl}_3\text{COOK}$ ,  $\text{HCOOH}$

Question Number : 45 Question Id : 86435121564 Question Type : MCQ Option Shuffling : Yes

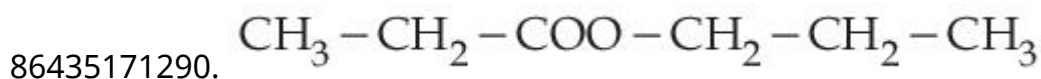
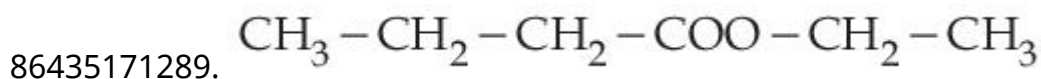
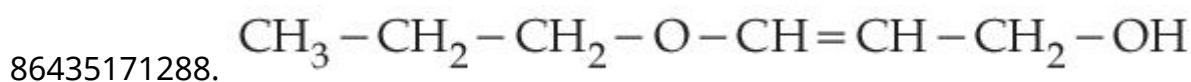
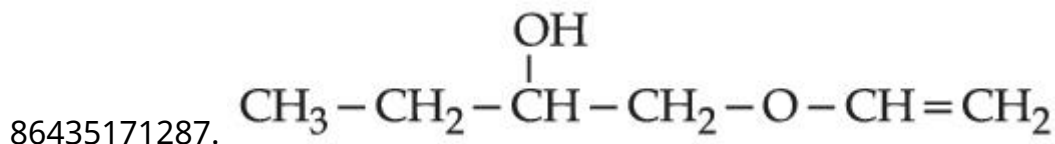
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the following sequence of reactions a compound A, (molecular formula  $C_6H_{12}O_2$ ) with a straight chain structure gives a  $C_4$  carboxylic acid. A is :



Options :



Question Number : 46 Question Id : 86435121565 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

**Statement I :** The nucleophilic addition of sodium hydrogen sulphite to an aldehyde or a ketone involves proton transfer to form a stable ion.

**Statement II :** The nucleophilic addition of hydrogen cyanide to an aldehyde or a ketone yields amine as final product.

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

Options :

86435171291. Both **Statement I** and **Statement II** are true.

86435171292. Both **Statement I** and **Statement II** are

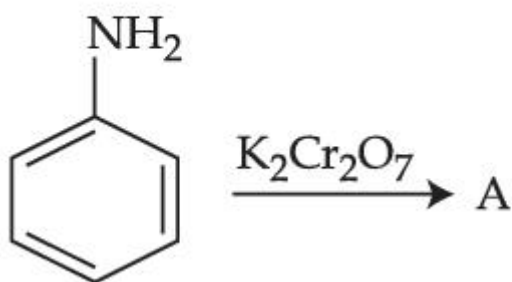
86435171293. **Statement I is true but Statement II is false.**

86435171294. **Statement I is false but Statement II is true.**

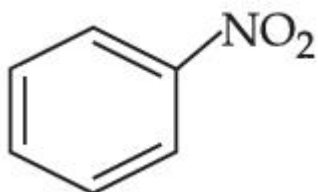
**Question Number : 47 Question Id : 86435121566 Question Type : MCQ Option Shuffling : Yes  
Is Question Mandatory : No**

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

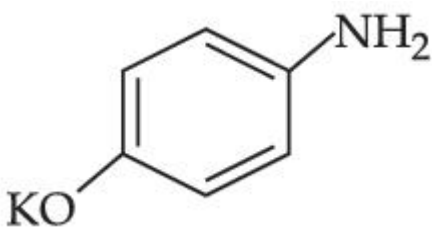
Identify A in the following reaction.



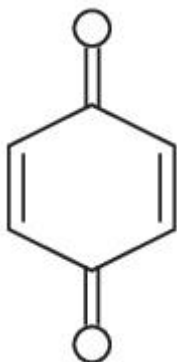
**Options :**



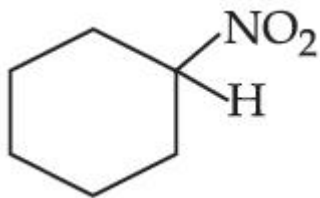
86435171295.



86435171296.



86435171297.



86435171298.

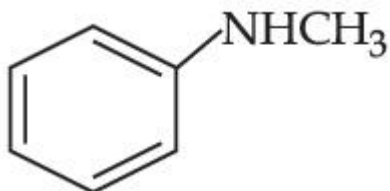
Question Number : 48 Question Id : 86435121567 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

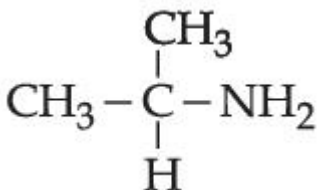
Correct Marks : 4 Wrong Marks : 1

Which one of the following gives the most stable Diazonium salt ?

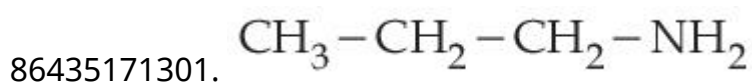
Options :



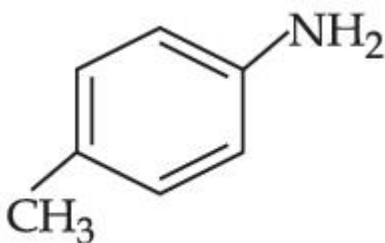
86435171299.



86435171300.



86435171301.



86435171302.

Question Number : 49 Question Id : 86435121568 Question Type : MCQ Option Shuffling : Yes

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Monomer units of Dacron polymer are :

**Options :**

86435171303. glycerol and phthalic acid

86435171304. ethylene glycol and phthalic acid

86435171305. ethylene glycol and terephthalic acid

86435171306. glycerol and terephthalic acid

**Question Number : 50 Question Id : 86435121569 Question Type : MCQ Option Shuffling : Yes**

**Is Question Mandatory : No**

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

The potassium ferrocyanide solution gives a Prussian blue colour, when added to :

**Options :**

86435171307.  $\text{FeCl}_2$

86435171308.  $\text{FeCl}_3$

86435171309.  $\text{CoCl}_3$

86435171310.  $\text{CoCl}_2$

<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>	8643511234
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 51 Question Id : 86435121570 Question Type : SA**

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

The number of atoms in 8 g of sodium is  $x \times 10^{23}$ . The value of  $x$  is \_\_\_\_\_.  
(Nearest integer)

[Given :  $N_A = 6.02 \times 10^{23} \text{ mol}^{-1}$

Atomic mass of Na = 23.0 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 : 86435121571 Question Type : SA**

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

An empty LPG cylinder weighs 14.8 kg. When full, it weighs 29.0 kg and shows a pressure of 3.47 atm. In the course of use at ambient temperature, the mass of the cylinder is reduced to 23.0 kg. The final pressure inside the cylinder is \_\_\_\_\_ atm. (Nearest integer)

(Assume LPG to be an ideal gas)

**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 : 86435121572 Question Type : SA**

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

A 50 watt bulb emits monochromatic red light of wavelength of 795 nm. The number of photons emitted per second by the bulb is  $x \times 10^{20}$ . The value of  $x$  is \_\_\_\_\_. (Nearest integer)

[Given :  $h = 6.63 \times 10^{-34}$  Js and  $c = 3.0 \times 10^8$  ms<sup>-1</sup>]

**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 : 86435121573 Question Type : SA**

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

The spin-only magnetic moment value of  $B_2^+$  species is \_\_\_\_\_  $\times 10^{-2}$  BM.

(Nearest integer)

[Given:  $\sqrt{3} = 1.73$ ]

**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 :** 86435121574 **Question Type :** SA

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

For the reaction  $2NO_2(g) \rightleftharpoons N_2O_4(g)$ , when  $\Delta S = -176.0 \text{ J K}^{-1}$  and  $\Delta H = -57.8 \text{ kJ mol}^{-1}$ , the magnitude of  $\Delta G$  at 298 K for the reaction is \_\_\_\_\_  $\text{kJ mol}^{-1}$ . (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 :** 56 **Question Id :** 86435121575 **Question Type :** SA

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

If 80 g of copper sulphate  $CuSO_4 \cdot 5H_2O$  is dissolved in deionised water to make 5 L of solution. The concentration of the copper sulphate solution is  $x \times 10^{-3} \text{ mol L}^{-1}$ . The value of  $x$  is \_\_\_\_\_.

[Atomic masses Cu : 63.54 u, S : 32 u, O : 16 u, H : 1 u]

**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 :** 86435121576 **Question Type :** SA

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

The molar solubility of  $\text{Zn(OH)}_2$  in 0.1 M NaOH solution is  $x \times 10^{-18}$  M. The value of  $x$  is \_\_\_\_\_ . (Nearest integer)

(Given : The solubility product of  $\text{Zn(OH)}_2$  is  $2 \times 10^{-20}$ )

**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 :** 86435121577 **Question Type :** SA

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

If the conductivity of mercury at  $0^\circ\text{C}$  is  $1.07 \times 10^6 \text{ S m}^{-1}$  and the resistance of a cell containing mercury is  $0.243 \Omega$ , then the cell constant of the cell is  $x \times 10^4 \text{ m}^{-1}$ . 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 : 59 Question Id : 86435121578 Question Type : SA**

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

The sum of oxidation states of two silver ions in  $[\text{Ag}(\text{NH}_3)_2][\text{Ag}(\text{CN})_2]$  complex is \_\_\_\_\_.

**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 : 86435121579 Question Type : SA**

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

A peptide synthesized by the reactions of one molecule each of Glycine, Leucine, Aspartic acid and Histidine will have \_\_\_\_\_ peptide linkages.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1