

# Chemistry

Section Id :	405036401
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	405036769
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 40503611031 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

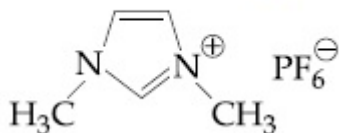
Correct Marks : 4 Wrong Marks : 1

An ionic micelle is formed on the addition  
of :

Options :

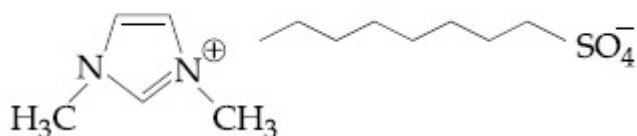
40503640096. liquid diethyl ether to aqueous NaCl  
solution

excess water to liquid

40503640097. 

40503640098. sodium stearate to pure toluene

excess water to liquid



40503640099.

**Question Number : 26 Question Id : 40503611031 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

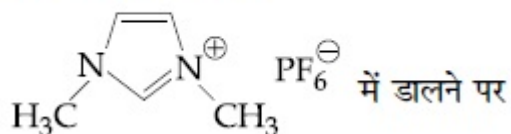
एक आयनिक मिसेल बनता है :

**Options :**

द्रव डाइएथिल ईथर को जलीय NaCl विलयन में डालने पर

40503640096.

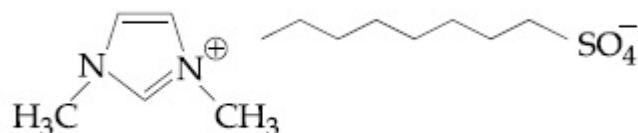
जल-आधिक्य को द्रव



40503640097.

40503640098. सोडियम स्टीरेट को शुद्ध टालूईन में डालने पर

जल-आधिक्य को द्रव



40503640099.

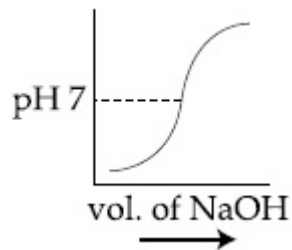
में डालने पर

**Question Number : 27 Question Id : 40503611032 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

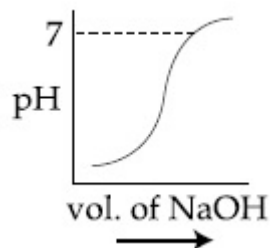
**Correct Marks : 4 Wrong Marks : 1**

100 mL of 0.1 M HCl is taken in a beaker and to it 100 mL of 0.1 M NaOH is added in steps of 2 mL and the pH is continuously measured. Which of the following graphs correctly depicts the change in pH ?

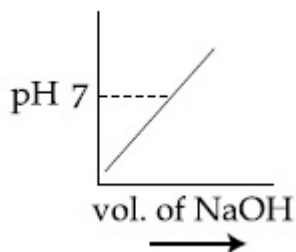
Options :



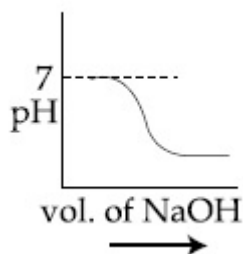
40503640100.



40503640101.



40503640102.



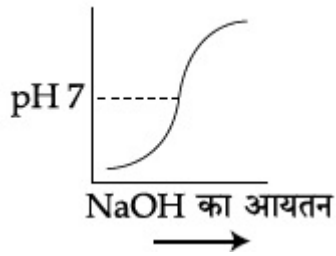
40503640103.

Question Number : 27 Question Id : 40503611032 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

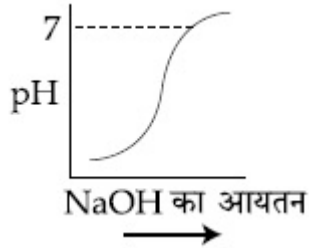
Correct Marks : 4 Wrong Marks : 1

0.1 M HCl के 100 mL को एक बीकर में लिया जाता है तथा इसमें 0.1 M NaOH के 100 mL को 2 mL के पदों में डाला जाता है तथा इसका pH निरन्तर मापा जाता रहा। pH में परिवर्तन के चित्रण के लिए निम्नलिखित आलेखों में से कौन सही है?

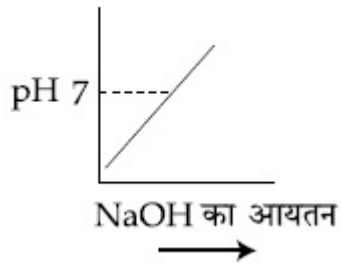
Options :



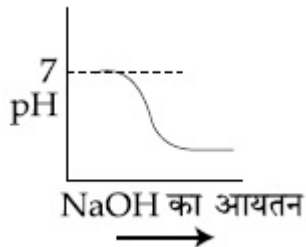
40503640100.



40503640101.



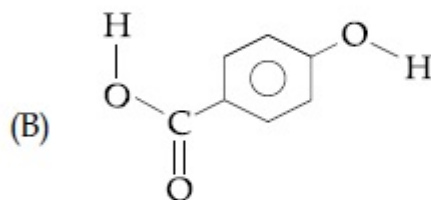
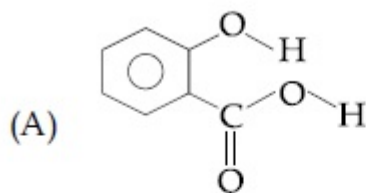
40503640102.



40503640103.

**Question Number : 28 Question Id : 40503611033 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
 Orientation : Vertical  
 Correct Marks : 4 Wrong Marks : 1**

Consider the following molecules and statements related to them :



- (a) (B) is more likely to be crystalline than (A)
- (b) (B) has higher boiling point than (A)
- (c) (B) dissolves more readily than (A) in water

Identify the correct option from below :

**Options :**

40503640104. (a) and (b) are true

40503640105. only (a) is true

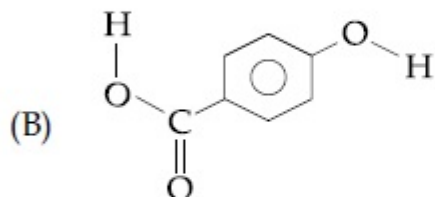
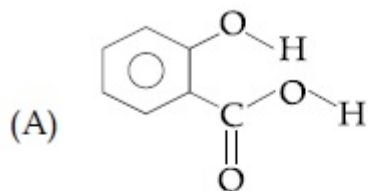
40503640106. (a) and (c) are true

40503640107. (b) and (c) are true

**Question Number : 28 Question Id : 40503611033 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

निम्न अणुओं एवं उनसे सम्बन्धित कथनों पर विचार कीजिए :



- (a) (A) की तुलना में (B) के क्रिस्टलित होने की ज्यादा सम्भावना है।  
(b) (A) से (B) का क्वथनांक उच्च है।  
(c) (A) की तुलना में (B) जल्दी से पानी में घुल जाता है।

निम्न में से सही विकल्प चुनिये :

Options :

40503640104. (a) तथा (b) सत्य हैं।

40503640105. मात्र (a) सत्य है।

40503640106. (a) तथा (c) सत्य हैं।

40503640107. (b) तथा (c) सत्य हैं।

Question Number : 29 Question Id : 40503611034 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

For the reaction  $2A + 3B + \frac{3}{2}C \rightarrow 3P$ ,

which statement is correct ?

Options :

40503640108.  $\frac{dn_A}{dt} = \frac{3}{2} \frac{dn_B}{dt} = \frac{3}{4} \frac{dn_C}{dt}$

40503640109.  $\frac{dn_A}{dt} = \frac{2}{3} \frac{dn_B}{dt} = \frac{3}{4} \frac{dn_C}{dt}$

40503640110.  $\frac{dn_A}{dt} = \frac{2}{3} \frac{dn_B}{dt} = \frac{4}{3} \frac{dn_C}{dt}$

40503640111.  $\frac{dn_A}{dt} = \frac{dn_B}{dt} = \frac{dn_C}{dt}$

**Question Number : 29 Question Id : 40503611034 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

अभिक्रिया  $2A + 3B + \frac{3}{2}C \rightarrow 3P$  के लिए कौन

सा कथन सही है?

**Options :**

40503640108.  $\frac{dn_A}{dt} = \frac{3}{2} \frac{dn_B}{dt} = \frac{3}{4} \frac{dn_C}{dt}$

40503640109.  $\frac{dn_A}{dt} = \frac{2}{3} \frac{dn_B}{dt} = \frac{3}{4} \frac{dn_C}{dt}$

40503640110.  $\frac{dn_A}{dt} = \frac{2}{3} \frac{dn_B}{dt} = \frac{4}{3} \frac{dn_C}{dt}$

40503640111.  $\frac{dn_A}{dt} = \frac{dn_B}{dt} = \frac{dn_C}{dt}$

**Question Number : 30 Question Id : 40503611035 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



Consider the hypothetical situation where the azimuthal quantum number,  $l$ , takes values  $0, 1, 2, \dots, n+1$ , where  $n$  is the principal quantum number. Then, the element with atomic number :

**Options :**

40503640112. 6 has a 2p-valence subshell
40503640113. 8 is the first noble gas
40503640114. 9 is the first alkali metal
40503640115. 13 has a half-filled valence subshell

**Question Number : 30 Question Id : 40503611035 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

परिकल्पित स्थिति में यदि एक दिये गये मुख्य क्वान्टम संख्या 'n' के लिए दिगंशीय क्वान्टम संख्या 'l' के मान  $0, 1, 2, \dots, n, n+1$  हों, तो तत्व, परमाणु संख्या

**Options :**

40503640112. 6 की एक 2p-संयोजकता उपकोशिका है।
40503640113. 8 प्रथम उत्कृष्ट गैस है।
40503640114. 9 प्रथम क्षारीय धातु है।
40503640115. 13 की अर्द्धपूरित संयोजकता उपकोशिका होगी।

**Question Number : 31 Question Id : 40503611036 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



A mixture of one mole each of  $H_2$ , He and  $O_2$  each are enclosed in a cylinder of volume  $V$  at temperature  $T$ . If the partial pressure of  $H_2$  is 2 atm, the total pressure of the gases in the cylinder is :

**Options :**

40503640116. 22 atm

40503640117. 6 atm

40503640118. 14 atm

40503640119. 38 atm

**Question Number : 31 Question Id : 40503611036 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

$H_2$ , He तथा  $O_2$  प्रत्येक के एक मोल के मिश्रण को ताप  $T$  पर आयतन  $V$  वाले सिलिन्डर में बन्द किया जाता है। यदि  $H_2$  का आंशिक दाब 2 atm है, तो सिलिन्डर में गैसों का सम्पूर्ण दाब है :

**Options :**

40503640116. 22 atm

40503640117. 6 atm

40503640118. 14 atm

40503640119. 38 atm

**Question Number : 32 Question Id : 40503611037 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The five successive ionization enthalpies of an element are 800, 2427, 3658, 25024 and 32824  $\text{kJ mol}^{-1}$ . The number of valence electrons in the element is :

**Options :**

40503640120. 4

40503640121. 2

40503640122. 3

40503640123. 5

**Question Number : 32 Question Id : 40503611037 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

एक तत्व की पाँच उत्तरोत्तर आयनन एन्थैल्पियाँ 800, 2427, 3658, 25024 तथा 32824 kJ mol<sup>-1</sup> हैं। तत्व में संयोजकता इलैक्ट्रॉनों की संख्या है :

**Options :**

40503640120. 4

40503640121. 2

40503640122. 3

40503640123. 5

**Question Number : 33 Question Id : 40503611038 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The strengths of 5.6 volume hydrogen peroxide (of density 1 g/mL) in terms of mass percentage and molarity (M), respectively, are :

(Take molar mass of hydrogen peroxide as 34 g/mol)

**Options :**

40503640124. 1.7 and 0.25

40503640125. 0.85 and 0.5

40503640126. 0.85 and 0.25

40503640127. 1.7 and 0.5

**Question Number : 33 Question Id : 40503611038 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical**

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

5.6 आयतन हाइड्रोजन पराक्साइड (घनत्व 1 g/mL)  
की प्रबलता, संहति प्रतिशतता तथा मोलारिटी (M) के  
रूप में, क्रमशः हैं :

(हाइड्रोजन पर-आक्साइड का मोलर द्रव्यमान  
34 g/mol लें)

**Options :**

40503640124. 1.7 तथा 0.25

40503640125. 0.85 तथा 0.5

40503640126. 0.85 तथा 0.25

40503640127. 1.7 तथा 0.5

**Question Number : 34 Question Id : 40503611039 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical**

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

Among the statements (I – IV), the correct ones are :

- (I) Be has smaller atomic radius compared to Mg.
- (II) Be has higher ionization enthalpy than Al.
- (III) Charge/radius ratio of Be is greater than that of Al.
- (IV) Both Be and Al form mainly covalent compounds.

**Options :**

40503640128. (I), (II) and (III)

40503640129. (I), (II) and (IV)

40503640130. (II), (III) and (IV)

40503640131. (I), (III) and (IV)

**Question Number : 34 Question Id : 40503611039 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

कथनों (I – IV) में से सही कथन हैं :

- (I) Mg की तुलना में Be की परमाणु त्रिज्या छोटी है।
- (II) Al की अपेक्षा Be की आयनन एन्थैल्पी अधिक है।
- (III) Al की अपेक्षा Be का आवेश/त्रिज्या अनुपात अधिक है।
- (IV) दोनों Be तथा Al मुख्यतः सहसंयोजक यौगिक बनाते हैं।

**Options :**

40503640128. (I), (II) तथा (III)

40503640129. (I), (II) तथा (IV)

40503640130. (II), (III) तथा (IV)

40503640131. (I), (III) तथा (IV)

**Question Number : 35 Question Id : 40503611040 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical**

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

The incorrect statement is :

**Options :**

40503640132. Manganate and permanganate ions are tetrahedral

40503640133. Manganate and permanganate ions are paramagnetic

40503640134. In manganate and permanganate ions, the  $\pi$ -bonding takes place by overlap of p-orbitals of oxygen and d-orbitals of manganese

40503640135. Manganate ion is green in colour and permanganate ion is purple in colour

**Question Number : 35 Question Id : 40503611040 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical**

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

गलत कथन है :

**Options :**

40503640132. मैंगनेट तथा परमैंगनेट आयन चतुष्फलकीय होते हैं।

40503640133. मैंगनेट तथा परमैंगनेट आयन अनुचुंबकीय होते हैं।



40503640134. मैंगनेट तथा परमैंगनेट आयनों में ऑक्सीजन के p-कक्षकों तथा मैंगनीज के d-कक्षकों के अतिव्यापन के द्वारा  $\pi$ -आबंध बनते हैं।

40503640135. मैंगनेट आयन हरे रंग का है तथा परमैंगनेट आयन नीललोहित रंग का है।

**Question Number : 36 Question Id : 40503611041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Complex A has a composition of  $H_{12}O_6Cl_3Cr$ . If the complex on treatment with conc.  $H_2SO_4$  loses 13.5% of its original mass, the correct molecular formula of A is :

[Given : atomic mass of Cr = 52 amu and Cl = 35 amu]

**Options :**

40503640136.  $[Cr(H_2O)_5Cl]Cl_2 \cdot H_2O$

40503640137.  $[Cr(H_2O)_4Cl_2]Cl \cdot 2H_2O$

40503640138.  $[Cr(H_2O)_3Cl_3] \cdot 3H_2O$

40503640139.  $[Cr(H_2O)_6]Cl_3$

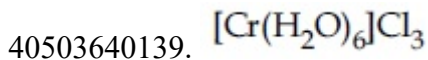
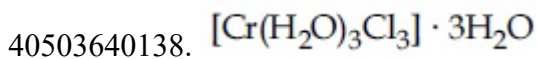
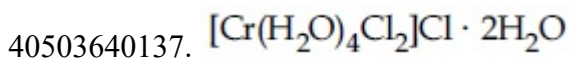
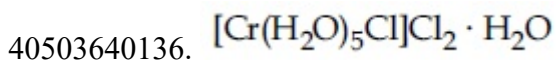
**Question Number : 36 Question Id : 40503611041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

संकुल A का संघटन  $H_{12}O_6Cl_3Cr$  है। यदि संकुल सान्द्र  $H_2SO_4$  के साथ अभिक्रिया कराने पर अपनी मूल संघटि का 13.5% खो देता है, तो A का सही आण्विक सूत्र है :

[दिया गया है : परमाणु संघटि Cr = 52 amu तथा Cl = 35 amu]

Options :

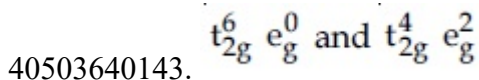
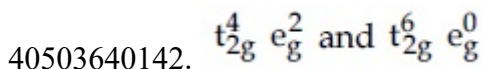
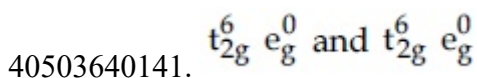
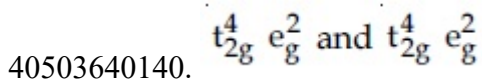


Question Number : 37 Question Id : 40503611042 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The d-electron configuration of  
 $[\text{Ru}(\text{en})_3]\text{Cl}_2$  and  $[\text{Fe}(\text{H}_2\text{O})_6]\text{Cl}_2$ ,  
respectively are :

Options :

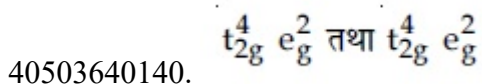


Question Number : 37 Question Id : 40503611042 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$[\text{Ru}(\text{en})_3]\text{Cl}_2$  तथा  $[\text{Fe}(\text{H}_2\text{O})_6]\text{Cl}_2$  के d-इलेक्ट्रॉन  
विन्यास क्रमशः हैं :

Options :





40503640141.  $t_{2g}^6 e_g^0$  तथा  $t_{2g}^6 e_g^0$

40503640142.  $t_{2g}^4 e_g^2$  तथा  $t_{2g}^6 e_g^0$

40503640143.  $t_{2g}^6 e_g^0$  तथा  $t_{2g}^4 e_g^2$

**Question Number : 38 Question Id : 40503611043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The incorrect statement(s) among (a) – (d) regarding acid rain is (are) :

- (a) It can corrode water pipes.
- (b) It can damage structures made up of stone.
- (c) It cannot cause respiratory ailments in animals
- (d) It is not harmful for trees

**Options :**

40503640144. (a), (b) and (d)

40503640145. (a), (c) and (d)

40503640146. (c) and (d)

40503640147. (c) only

**Question Number : 38 Question Id : 40503611043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

अम्लीय वर्षा के संबंध में कथन (a) – (d) में से गलत कथन है/हैं :

- (a) यह जल के पाइपों को संक्षारित करता है।
- (b) यह पत्थर की बनी संरचनाओं को क्षति पहुँचाता है।
- (c) यह मवेशियों में श्वसन की बीमारी का कारण नहीं हो सकता है।
- (d) यह पेड़ों के लिए हानिकारक नहीं है।

**Options :**

40503640144. (a), (b) तथा (d)

40503640145. (a), (c) तथा (d)

40503640146. (c) तथा (d)

40503640147. (c) मात्र

**Question Number : 39 Question Id : 40503611044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The increasing order of the reactivity of the following compounds in nucleophilic addition reaction is :

Propanal, Benzaldehyde, Propanone, Butanone

**Options :**

40503640148. Propanal < Propanone < Butanone < Benzaldehyde

40503640149. Benzaldehyde < Propanal < Propanone < Butanone

40503640150. Benzaldehyde < Butanone < Propanone < Propanal

Butanone < Propanone <

40503640151. Benzaldehyde < Propanal

Question Number : 39 Question Id : 40503611044 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित यौगिकों की नाभिकरागी योगज  
अभिक्रियाओं में अभिक्रियाशीलता का बढ़ता क्रम है :  
प्रोपेनल, बेन्जालिडहाइड, प्रोपेनोन, ब्यूटेनोन

Options :

40503640148. प्रोपेनल < प्रोपेनोन < ब्यूटेनोन < बेन्जालिडहाइड

40503640149. बेन्जालिडहाइड < प्रोपेनल < प्रोपेनोन < ब्यूटेनोन

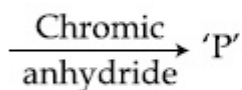
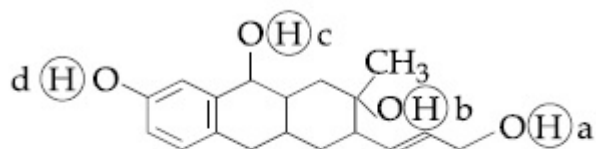
40503640150. बेन्जालिडहाइड < ब्यूटेनोन < प्रोपेनोन < प्रोपेनल

40503640151. ब्यूटेनोन < प्रोपेनोन < बेन्जालिडहाइड < प्रोपेनल

Question Number : 40 Question Id : 40503611045 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Consider the following reaction :



The product 'P' gives positive ceric ammonium nitrate test. This is because of the presence of which of these -OH group(s) ?

Options :

40503640152. (c) and (d)

40503640153. (b) and (d)

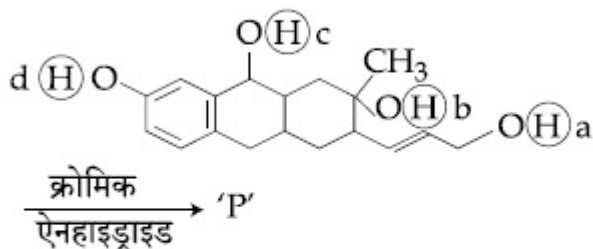
40503640154. (b) only

40503640155. (d) only

**Question Number : 40 Question Id : 40503611045 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

निम्नलिखित अभिक्रिया पर विचार कीजिए :



उत्पाद 'P' सकारात्मक सेरिक अमोनियम नाइट्रेट परीक्षण देता है। यह इनमें से किस -OH समूह की उपस्थिति के कारण है?

**Options :**

40503640152. (c) तथा (d)

40503640153. (b) तथा (d)

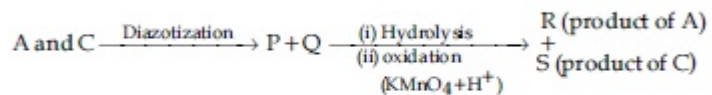
40503640154. (b) मात्र

40503640155. (d) मात्र

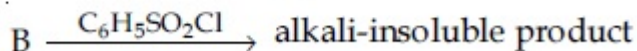
**Question Number : 41 Question Id : 40503611046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Three isomers A, B and C (mol. formula  $C_8H_{11}N$ ) give the following results :

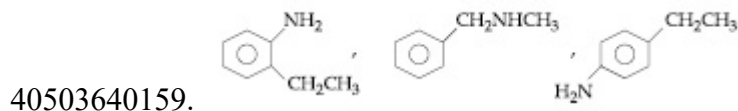
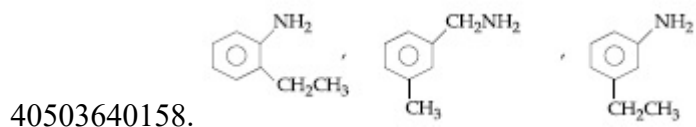
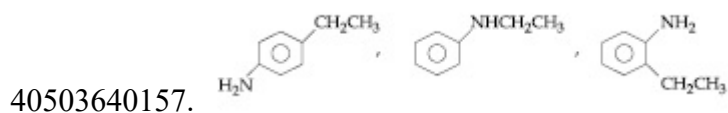
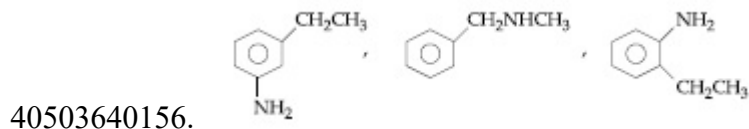


R has lower boiling point than S



A, B and C, respectively are :

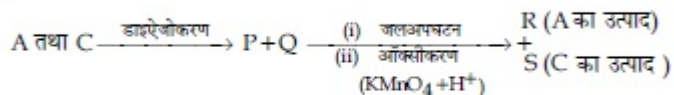
Options :



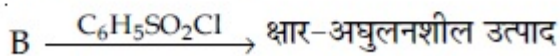
Question Number : 41 Question Id : 40503611046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

तीन समावयवी A, B तथा C (अणुसूत्र  $C_8H_{11}N$ ) निम्नलिखित परिणाम देते हैं :

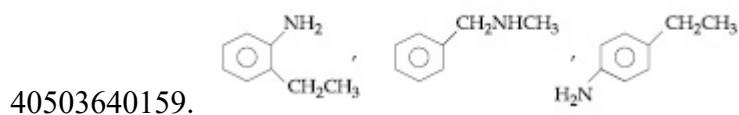
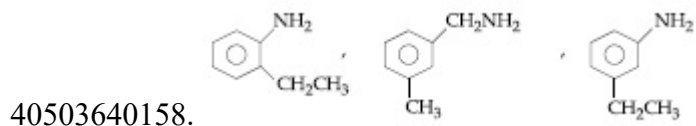
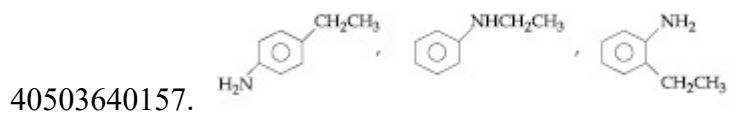
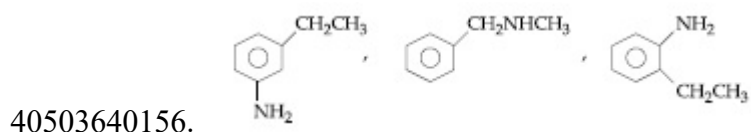


R का क्वथनांक S से कम है।



A, B तथा C क्रमशः हैं :

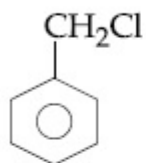
Options :



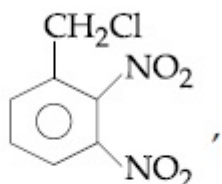
**Question Number : 42 Question Id : 40503611047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

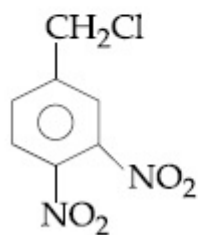
The decreasing order of reactivity of the following compounds towards nucleophilic substitution ( $S_N2$ ) is :



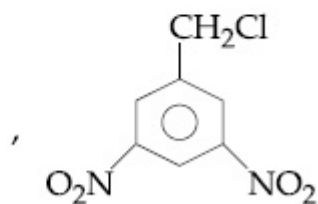
(I)



(II)

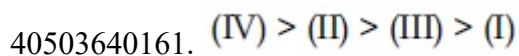
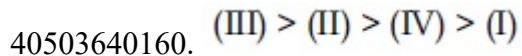


(III)



(IV)

**Options :**





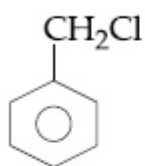
40503640162. (II) > (III) > (I) > (IV)

40503640163. (II) > (III) > (IV) > (I)

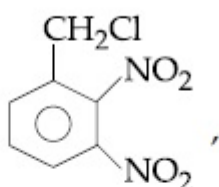
Question Number : 42 Question Id : 40503611047 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

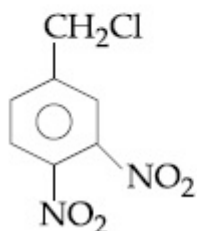
निम्नलिखित यौगिकों की नाभिकरागी प्रतिस्थापन  
(S<sub>N</sub>2) के प्रति अभिक्रियाशीलता का घटता क्रम है :



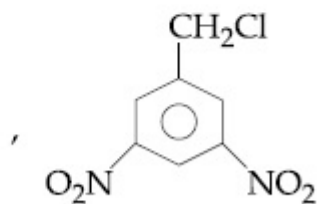
(I)



(II)



(III)



(IV)

Options :

40503640160. (III) > (II) > (IV) > (I)

40503640161. (IV) > (II) > (III) > (I)

40503640162. (II) > (III) > (I) > (IV)

40503640163. (II) > (III) > (IV) > (I)

Question Number : 43 Question Id : 40503611048 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1



Match the following drugs with their therapeutic actions :

- |                                    |                    |
|------------------------------------|--------------------|
| (i) Ranitidine                     | (a) Antidepressant |
| (ii) Nardil<br>(Phenelzine)        | (b) Antibiotic     |
| (iii) Chloramphenicol              | (c) Antihistamine  |
| (iv) Dimetane<br>(Brompheniramine) | (d) Antacid        |
|                                    | (e) Analgesic      |

**Options :**

40503640164. (i)-(d); (ii)-(c); (iii)-(a); (iv)-(e)

40503640165. (i)-(d); (ii)-(a); (iii)-(b); (iv)-(c)

40503640166. (i)-(e); (ii)-(a); (iii)-(c); (iv)-(d)

40503640167. (i)-(a); (ii)-(c); (iii)-(b); (iv)-(e)

**Question Number : 43 Question Id : 40503611048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

निम्नलिखित औषधियों को उनके चिकित्सकीय क्रियाओं के साथ सुमेलित कीजिए :

- |                                   |                    |
|-----------------------------------|--------------------|
| (i) रैनिटिडीन                     | (a) प्रतिअवसादक    |
| (ii) नारडिल (फिनल्लिजन)           | (b) प्रतिजैविक     |
| (iii) क्लोरैम्फेनिकॉल             | (c) प्रतिहिस्टैमिन |
| (iv) डाइमेटेन<br>(ब्रोमफेनिरामिन) | (d) प्रति-अम्ल     |
|                                   | (e) पीड़ाहारी      |

**Options :**

40503640164. (i)-(d); (ii)-(c); (iii)-(a); (iv)-(e)

40503640165. (i)-(d); (ii)-(a); (iii)-(b); (iv)-(c)

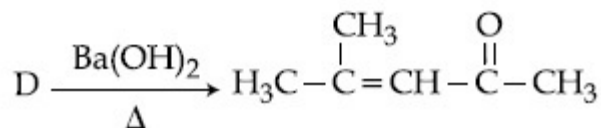
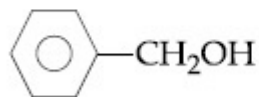
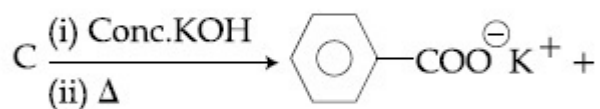
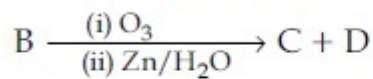
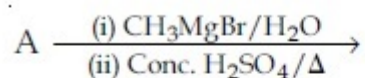
40503640166. (i)-(e); (ii)-(a); (iii)-(c); (iv)-(d)

40503640167. (i)-(a); (ii)-(c); (iii)-(b); (iv)-(e)

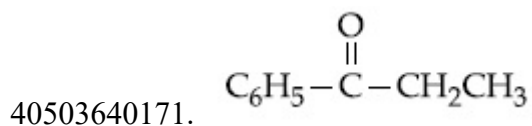
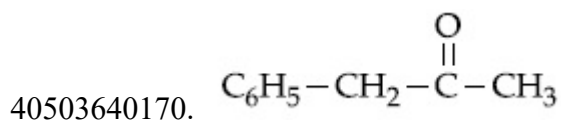
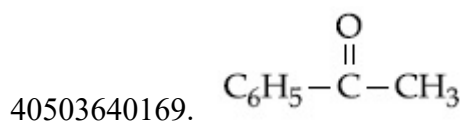
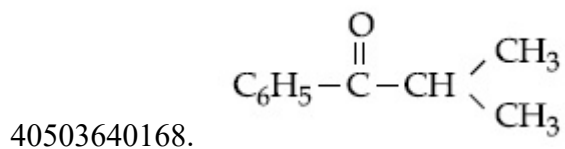
**Question Number : 44 Question Id : 40503611049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The compound A in the following reactions is :



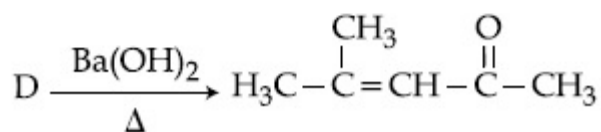
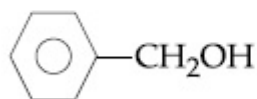
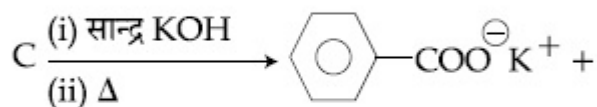
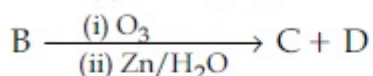
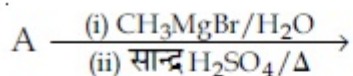
**Options :**



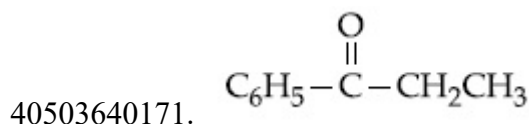
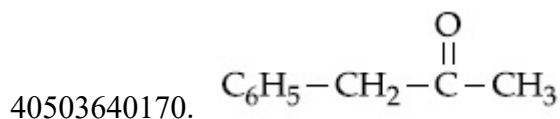
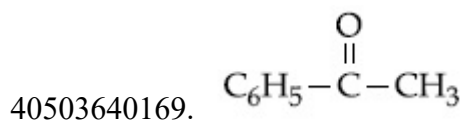
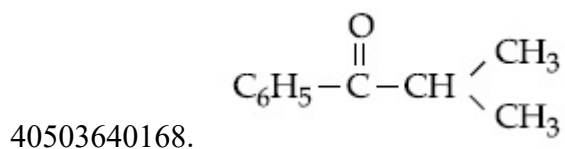
Question Number : 44 Question Id : 40503611049 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
 Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रियाओं में यौगिक A है :



Options :

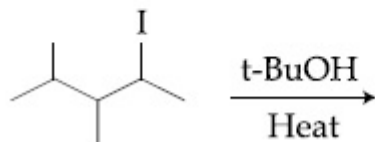


Question Number : 45 Question Id : 40503611050 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

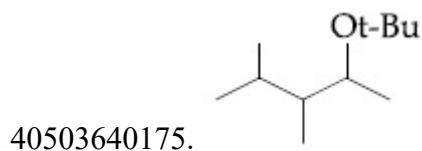
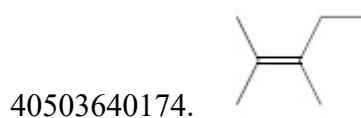
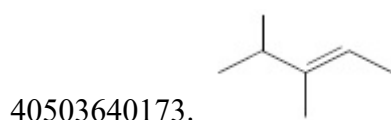
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The major product in the following reaction is :



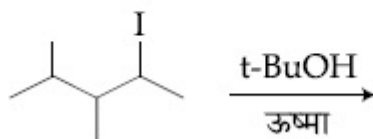
Options :



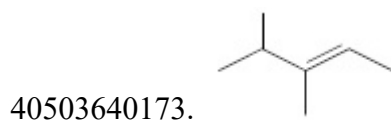
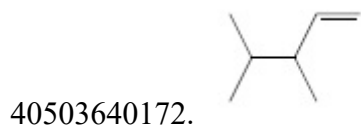
Question Number : 45 Question Id : 40503611050 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option  
Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

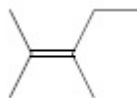
निम्नलिखित अभिक्रियाओं में मुख्य उत्पाद है :



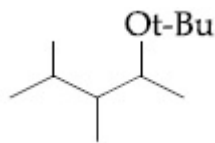
Options :



40503640174.



40503640175.



**Sub-Section Number :**

2

**Sub-Section Id :**

405036770

**Question Shuffling Allowed :**

Yes

**Question Number : 46 Question Id : 40503611051 Question Type : SA Display Question Number : Yes  
Correct Marks : 4 Wrong Marks : 0**

6.023  $\times 10^{22}$  molecules are present in 10 g of a substance 'x'. The molarity of a solution containing 5 g of substance 'x' in 2 L solution is \_\_\_\_\_  $\times 10^{-3}$ .

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number : 46 Question Id : 40503611051 Question Type : SA Display Question Number : Yes  
Correct Marks : 4 Wrong Marks : 0**

एक पदार्थ 'x' के 10 g में  $6.023 \times 10^{22}$  अणु उपस्थित हैं। तो उस विलयन की मोलारिटी, जिसके 2 L विलयन में पदार्थ 'x' का 5 g है, होगी \_\_\_\_\_  $\times 10^{-3}$ ।

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number : 47 Question Id : 40503611052 Question Type : SA Display Question Number : Yes**  
**Correct Marks : 4 Wrong Marks : 0**

If  $250 \text{ cm}^3$  of an aqueous solution containing  $0.73 \text{ g}$  of a protein A is isotonic with one litre of another aqueous solution containing  $1.65 \text{ g}$  of a protein B, at  $298 \text{ K}$ , the ratio of the molecular masses of A and B is \_\_\_\_\_  $\times 10^{-2}$  (to the nearest integer).

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

5 to 5.002

**Question Number : 47 Question Id : 40503611052 Question Type : SA Display Question Number : Yes**  
**Correct Marks : 4 Wrong Marks : 0**

यदि प्रोटीन A के एक जलीय विलयन का  $250 \text{ cm}^3$  जिसमें A का  $0.73 \text{ g}$  है, प्रोटीन B के एक जलीय विलयन जिसके  $1$  लीटर में प्रोटीन का  $1.65 \text{ g}$  है,  $298 \text{ K}$  पर समपरासारी हैं A तथा B के आण्विक संहतियों का अनुपात है \_\_\_\_\_  $\times 10^{-2}$  (निकटतम पूर्णक)।

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

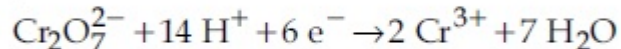
**Possible Answers :**

5 to 5.002

**Question Number : 48 Question Id : 40503611053 Question Type : SA Display Question Number : Yes**  
**Correct Marks : 4 Wrong Marks : 0**



An acidic solution of dichromate is electrolyzed for 8 minutes using 2A current. As per the following equation



The amount of  $\text{Cr}^{3+}$  obtained was 0.104 g. The efficiency of the process(in%) is (Take :  $F=96000 \text{ C}$ , At. mass of chromium = 52) \_\_\_\_\_.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

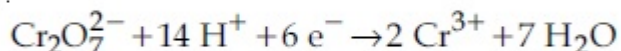
**Possible Answers :**

5 to 5.002

**Question Number : 48 Question Id : 40503611053 Question Type : SA Display Question Number : Yes**

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

डाइक्रोमेट के एक अम्लीय विलयन को 2A विद्युतधारा का उपयोग करके 8 मिनट तक वैद्युत अपघटित किया गया। निम्नलिखित समीकरण के आधार पर



बने  $\text{Cr}^{3+}$  की आकलित मात्रा 0.104 g पायी गई। प्रक्रम की दक्षता (% में) है (मानें :  $F=96000 \text{ C}$ , क्रोमियम की परमाणु संहति=52) \_\_\_\_\_.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number : 49 Question Id : 40503611054 Question Type : SA Display Question Number : Yes**

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



The volume (in mL) of 0.1 N NaOH required to neutralise 10 mL of 0.1 N phosphinic acid is \_\_\_\_\_.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number :** 49 **Question Id :** 40503611054 **Question Type :** SA Display **Question Number :** Yes

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

0.1 N फॉस्फिनिक अम्ल के 10 mL को उदासीन करने के लिए आवश्यक 0.1 N NaOH का आयतन (mL में) है \_\_\_\_\_।

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number :** 50 **Question Id :** 40503611055 **Question Type :** SA Display **Question Number :** Yes

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

The number of  $\text{>C=O}$  groups present in a tripeptide Asp - Glu - Lys is \_\_\_\_\_.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

**Question Number :** 50 **Question Id :** 40503611055 **Question Type :** SA Display **Question Number :** Yes

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

एक ट्राइपेप्टाइड, Asp - Glu - Lys में उपस्थित

$\text{C}=\text{O}$  समूहों की संख्या है \_\_\_\_\_ ।

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

5 to 5.002

## Mathematics

<b>Section Id :</b>	405036402
<b>Section Number :</b>	3
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	25
<b>Number of Questions to be attempted :</b>	25
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	405036771
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 51 Question Id : 40503611056 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option**  
**Orientation : Vertical**

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

Let  $R_1$  and  $R_2$  be two relations defined as follows :

$R_1 = \{(a, b) \in \mathbb{R}^2 : a^2 + b^2 \in \mathbb{Q}\}$  and

$R_2 = \{(a, b) \in \mathbb{R}^2 : a^2 + b^2 \notin \mathbb{Q}\}$ , where  $\mathbb{Q}$  is the set of all rational numbers. Then :

**Options :**

40503640181.  $R_1$  and  $R_2$  are both transitive.

40503640182.  $R_1$  is transitive but  $R_2$  is not transitive.