

# Chemistry

<b>Section Id :</b>	40503685
<b>Section Number :</b>	2
<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>Sub-Section Number:</b>	1
<b>Sub-Section Id:</b>	405036142
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 26 Question Type : MCQ Option Shuffling : Yes**

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

The true statement amongst the following

is :

**Options :**

S is a function of temperature but  $\Delta S$

**1.** is not a function of temperature.

Both  $\Delta S$  and  $S$  are functions of  
2. temperature.

Both  $S$  and  $\Delta S$  are not functions of  
3. temperature.

$S$  is not a function of temperature but  
4.  $\Delta S$  is a function of temperature.

Question Number : 26 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित कथनों में से सही कथन है :

Options :

$S$  ताप का एक फलन है परन्तु  $\Delta S$  ताप का एक  
1. फलन नहीं है।

2. दोनों  $\Delta S$  तथा  $S$  ताप के फलन हैं।

3. दोनों  $S$  तथा  $\Delta S$  ताप के फलन नहीं है।

$S$  ताप का एक फलन नहीं है परन्तु,  $\Delta S$  ताप  
4. का एक फलन है।

Question Number : 26 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

नीचे आपेला विधानो पैकी सायुं विधान शोधो :

Options :

$S$  अे तापमान नुं विधेय छे परंतु  $\Delta S$  अे तापमान  
1. नुं विधेय नथी.

2.  $\Delta S$  અને  $S$  બંને તાપમાન ના વિધેયો છે.

3.  $S$  અને  $\Delta S$  બંને તાપમાન ના વિધેયો નથી.

$S$  એ તાપમાનનું વિધેય નથી પરંતુ  $\Delta S$  એ

4. તાપમાનનું વિધેય છે.

Question Number : 27 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

The solubility product of  $\text{Cr}(\text{OH})_3$  at 298 K is  $6.0 \times 10^{-31}$ . The concentration of hydroxide ions in a saturated solution of  $\text{Cr}(\text{OH})_3$  will be :

Options :

1.  $(18 \times 10^{-31})^{1/4}$

2.  $(4.86 \times 10^{-29})^{1/4}$

3.  $(2.22 \times 10^{-31})^{1/4}$

4.  $(18 \times 10^{-31})^{1/2}$

Question Number : 27 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

298 K પર,  $\text{Cr}(\text{OH})_3$  का विलेयता गुणांक  $6.0 \times 10^{-31}$  है।  $\text{Cr}(\text{OH})_3$  के एक संतृप्त विलयन में हाइड्रॉक्साइड आयन की सान्द्रता होगी :

Options :

1.  $(18 \times 10^{-31})^{1/4}$

2.  $(4.86 \times 10^{-29})^{1/4}$

3.  $(2.22 \times 10^{-31})^{1/4}$

4.  $(18 \times 10^{-31})^{1/2}$

Question Number : 27 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

298 K પર  $\text{Cr}(\text{OH})_3$  ની દ્રાવ્યતા ગુણાકાર  $6.0 \times 10^{-31}$  છે તો  $\text{Cr}(\text{OH})_3$  ના સંતૃપ્ત દ્રાવણમાં હાઈડ્રોક્સાઈડ આયનની સાંદ્રતા શું હશે?

Options :

1.  $(18 \times 10^{-31})^{1/4}$

2.  $(4.86 \times 10^{-29})^{1/4}$

3.  $(2.22 \times 10^{-31})^{1/4}$

4.  $(18 \times 10^{-31})^{1/2}$

Question Number : 28 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

Amongst the following, the form of water with the lowest ionic conductance at 298 K is :

Options :

1. sea water

2. water from a well

saline water used for intravenous

3. injection

4. distilled water

Question Number : 28 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

298 K पर वह जल का प्रारूप, जिसकी आयनिक चालकता सबसे कम हो, निम्नलिखित में से है :

Options :

1. समुद्र जल

2. कुँए का जल

3. लवण जल जिसका अंतःशिरा इन्जेक्शन में प्रयुक्त होता है

4. आसवित जल

Question Number : 28 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

नीचे आपेला पाएलीना विविध सवइपो मां कया अेकमां  
298 K पर आयनिक वाहकता सौथी ओछी हरे?

Options :

1. हरियानुं पाएली

2. કુવામાનું પાણી

નસની અંદર અપાતા ઈન્જેક્શન માટે સલાઈન

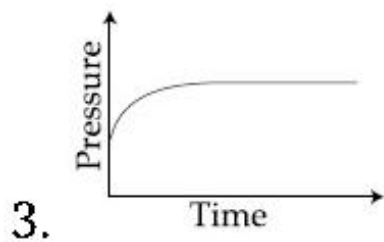
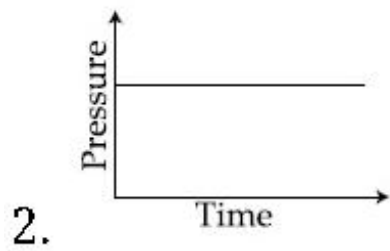
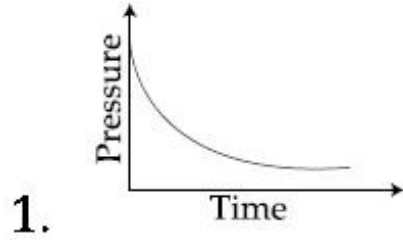
3. પાણી

4. નિસ્ચંદિત પાણી

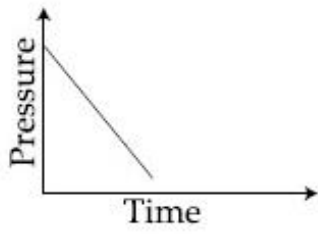
Question Number : 29 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

A mixture of gases  $O_2$ ,  $H_2$  and  $CO$  are taken in a closed vessel containing charcoal. The graph that represents the correct behaviour of pressure with time is :

Options :



4.

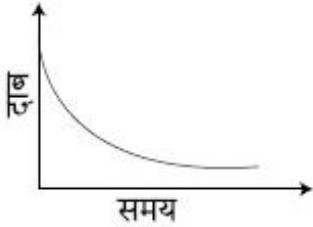


Question Number : 29 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

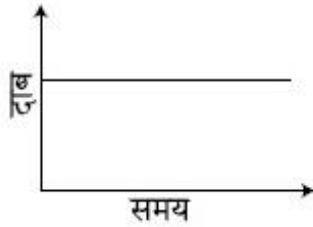
$O_2$ ,  $H_2$  तथा  $CO$  गैसों के एक मिश्रण को एक बन्द पात्र में लिया जाता है जिसमें चारकोल है। आलेख जो, दाब का समय के साथ सही व्यवहार निरूपित करता है, है :

Options :

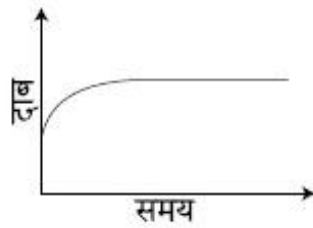
1.



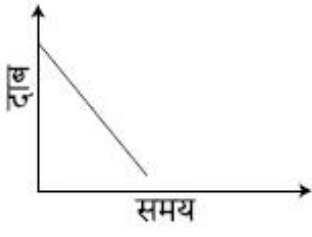
2.



3.



4.

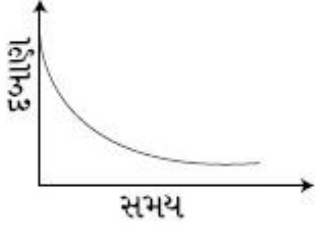


Question Number : 29 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

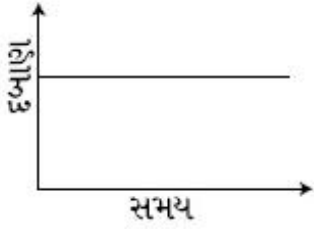
ચારકોલ ઘરાવતા એક બંધ પાત્રમાં વાયુઓ  $O_2$ ,  $H_2$  અને  $CO$  નું મિશ્રણ લેવામાં આવ્યું. નીચે આપેલા પૈકી કયા એક આલેખમાં દબાણ સાથે સમયની સાચી વર્તણૂકનું નિર્દેશન કરે છે ?

Options :

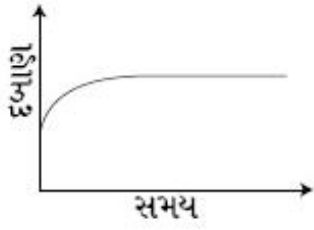
1.



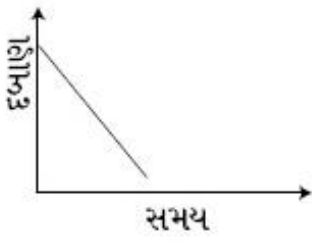
2.



3.



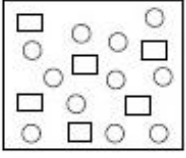




4.

Question Number : 30 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

નીચે આપેલી આકૃતિમાં પ્રક્રિયક A (ચોરસ વડે દર્શાવેલ છે) જે નિપજ B (ગોળ વડે દર્શાવેલ છે) સાથે સંતુલન માં છે. તો સંતુલન અચળાંક શું છે?



Options :

1. 2

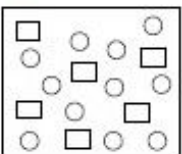
2. 4

3. 8

4. 1

Question Number : 30 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

In the figure shown below reactant A (represented by square) is in equilibrium with product B (represented by circle). The equilibrium constant is :



Options :

1. 2

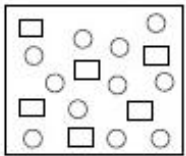
2. 4

3. 8

4. 1

Question Number : 30 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

नीचे दिये गये आकृति में, अभिकारक A (वर्ग द्वारा निरूपित) उत्पाद B (वृत्त द्वारा निरूपित) के साथ साम्यावस्था में है। साम्य स्थिरांक है :



Options :

1. 2

2. 4

3. 8

4. 1

Question Number : 31 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

The number of  $sp^2$  hybrid orbitals in a molecule of benzene is :

Options :

1. 6

2. 12

3. 18

4. 24

Question Number : 31 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

बेन्ज़ीन के एक अणु में  $sp^2$  संकर कक्षकों की संख्या है :

Options :

1. 6

2. 12

3. 18

4. 24

Question Number : 31 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

बेन्ज़ीनना आणुमां रलेली  $sp^2$  संकृत कक्षकनी संख्या शोधो.

Options :

1. 6

2. 12

3. 18

4. 24

Question Number : 32 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

The first and second ionisation enthalpies of a metal are 496 and 4560 kJ mol<sup>-1</sup>, respectively. How many moles of HCl and H<sub>2</sub>SO<sub>4</sub>, respectively, will be needed to react completely with 1 mole of the metal hydroxide ?

Options :

1. 1 and 1

2. 2 and 0.5

3. 1 and 2

4. 1 and 0.5

Question Number : 32 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

एक धातु की प्रथम तथा द्वितीय आयतन एन्थैल्पियाँ क्रमशः 496 तथा 4560 kJ mol<sup>-1</sup> है। एक मोल धातु हाइड्राक्साइड से पूर्णतया अभिक्रिया के लिए HCl तथा H<sub>2</sub>SO<sub>4</sub>, के कितने मोलों की आवश्यकता होगी ?

Options :

1. 1 તથા 1

2. 2 તથા 0.5

3. 1 તથા 2

4. 1 તથા 0.5

Question Number : 32 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

એક ધાતુની પ્રથમ અને દ્વિતીય આયનિકરણ એન્થાલ્પી અનુક્રમે 496 અને  $4560 \text{ kJ mol}^{-1}$  છે. 1 mole ધાતુ હાઈડ્રોક્સાઈડ સાથે સંપૂર્ણપણે પ્રક્રિયા કરવા, અનુક્રમે કેટલા મોલ HCl અને  $\text{H}_2\text{SO}_4$  ની જરૂર પડશે?

Options :

1. 1 અને 1

2. 2 અને 0.5

3. 1 અને 2

4. 1 અને 0.5

Question Number : 33 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

5 g of zinc is treated separately with an excess of

- (a) dilute hydrochloric acid and
- (b) aqueous sodium hydroxide.

The ratio of the volumes of  $H_2$  evolved in these two reactions is :

Options :

- 1. 1 : 2
- 2. 1 : 1
- 3. 2 : 1
- 4. 1 : 4

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

Correct Marks : 4 Wrong Marks : 1

5 g जिंक को अलग-अलग

- (a) तनु हाइड्रोक्लोरिक अम्ल तथा
- (b) जलीय सोडियम हाइड्रॉक्साइड के आधिक्य के साथ अभिक्रियित किया जाता है।

इन दोनों अभिक्रियाओं में उत्सर्जित  $H_2$  के आयतनों का अनुपात है :

Options :

- 1. 1 : 2
- 2. 1 : 1
- 3. 2 : 1

4. 1 : 4

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

Correct Marks : 4 Wrong Marks : 1

5 g ઝિંક ને વધુ પડતા

(a) મંદ હાઈડ્રોકલોરીક એસિડ અને

(b) જલીય સોડિયમ હાઈડ્રોક્સાઈડ

સાથે જુદા-જુદા ગરમ કરતા આ બંને પ્રક્રિયામાં નિકળતા

$H_2$  ના કદનો ગુણોત્તર શોધો :

Options :

1. 1 : 2

2. 1 : 1

3. 2 : 1

4. 1 : 4

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

Correct Marks : 4 Wrong Marks : 1

Among the statements (a)-(d), the correct ones are :

(a) Lithium has the highest hydration enthalpy among the alkali metals.

(b) Lithium chloride is insoluble in pyridine.

(c) Lithium cannot form ethynide upon its reaction with ethyne.

(d) Both lithium and magnesium react slowly with  $H_2O$ .

Options :

1. (a) and (d) only
2. (b) and (c) only
3. (a), (c) and (d) only
4. (a), (b) and (d) only

Question Number : 34 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

कथनों (a)-(d) में से सही कथन हैं :

- (a) क्षार-धातुओं में लिथियम की जलयोजना एन्थैल्पी सबसे अधिक है।
- (b) लीथियम क्लोराइड पिरिडीन में अविलेय है।
- (c) लीथियम एथाइन से अभिक्रिया करके एथाइनाइड नहीं बना सकता है।
- (d) लीथियम तथा मैग्नीशियम दोनों जल के साथ धीरे-धीरे अभिक्रिया करते हैं।

Options :

1. (a) तथा (d) मात्र
2. (b) तथा (c) मात्र
3. (a), (c) तथा (d) मात्र
4. (a), (b) तथा (d) मात्र

Question Number : 34 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1



આપેલા વિધાનો (a)-(d) માં સાચું એક વિધાન શોધો :

- (a) આલ્કલી ધાતુઓમાં લિથિયમની જલયોજન ઉષ્મા સૌથી વધુ છે.
- (b) લિથિયમ ક્લોરાઇડ પિરિડિનમાં અદ્રાવ્ય છે.
- (c) લિથિયમની ઈથાઇન સાથેની પ્રક્રિયામાં ઈથીનાઇડ બનાવતો નથી.
- (d) લિથિયમ અને મેગ્નેશિયમ બંને  $H_2O$  સાથે ધીમી પ્રક્રિયા કરે છે.

Options :

1. ફક્ત(a) અને (d)
2. ફક્ત (b) અને (c)
3. ફક્ત (a), (c) અને (d)
4. ફક્ત (a), (b) અને (d)

Question Number : 35 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

The reaction of  $H_3N_3B_3Cl_3$  (A) with  $LiBH_4$  in tetrahydrofuran gives inorganic benzene (B). Further, the reaction of (A) with (C) leads to  $H_3N_3B_3(Me)_3$ . Compounds (B) and (C) respectively, are :

Options :

1. Diborane and  $MeMgBr$
2. Borazine and  $MeMgBr$

3. Boron nitride and MeBr

4. Borazine and MeBr

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

Correct Marks : 4 Wrong Marks : 1

$H_3N_3B_3Cl_3$  (A) की टेट्राहाइड्रोफ्यूरान में  $LiBH_4$  के साथ अभिक्रिया अकार्बनिक बेन्जीन (B) देती है।

आगे (A) की (C) के साथ अभिक्रिया  $H_3N_3B_3(Me)_3$  देती है। यौगिक (B) तथा (C) क्रमशः हैं :

Options :

1. डाइबोरेन तथा  $MeMgBr$

2. बोरैजीन तथा  $MeMgBr$

3. बोरॉन नाइट्राइड तथा  $MeBr$

4. बोरैजीन तथा  $MeBr$

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

Correct Marks : 4 Wrong Marks : 1

$H_3N_3B_3Cl_3$  (A) ની ટેટ્રાહાઈડ્રોફ્યુરેન માં ના  $LiBH_4$  સાથે પ્રક્રિયા કરતા અકાર્બનિક બેન્ઝીન (B) આપે છે.

વધુમાં (A) ની (C) સાથે પ્રક્રિયા કરતા  $H_3N_3B_3(Me)_3$  આપે છે. તો સંયોજન (B) અને (C) અનુક્રમે શોધો.

Options :

1. ડાયબોરેન અને  $MeMgBr$

2. બોરેઝિન અને  $MeMgBr$

3. બોરોનનાઇટ્રાઇડ અને MeBr

4. બોરેઝિન અને MeBr

Question Number : 36 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

The isomer(s) of  $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]$  that has/  
have a Cl – Co – Cl angle of  $90^\circ$ , is/are :

Options :

1. trans only

2. cis only

3. cis and trans

4. meridional and trans

Question Number : 36 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

$[\text{Co}(\text{NH}_3)_4\text{Cl}_2]$  के समावयवी जिसमें/जिनमें  
Cl – Co – Cl कोण  $90^\circ$  का है, है/हैं :

Options :

1. ट्रान्स मात्र

2. सिस मात्र

3. सिस तथा ट्रान्स

#### 4. रेखांशिक तथा ट्रान्स

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

Correct Marks : 4 Wrong Marks : 1

$[\text{Co}(\text{NH}_3)_4\text{Cl}_2]$  ના સમઘટક(કો) માં  $\text{Cl}-\text{Co}-\text{Cl}$

ખૂણો  $90^\circ$  નો છે, તે શોધો :

Options :

1. ફક્ત ટ્રાન્સ

2. ફક્ત સીસ

3. સીસ અને ટ્રાન્સ

4. મેરીડોનિઅલ અને ટ્રાન્સ

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

Correct Marks : 4 Wrong Marks : 1

The correct order of the spin-only magnetic moments of the following complexes is :

(I)  $[\text{Cr}(\text{H}_2\text{O})_6]\text{Br}_2$

(II)  $\text{Na}_4[\text{Fe}(\text{CN})_6]$

(III)  $\text{Na}_3[\text{Fe}(\text{C}_2\text{O}_4)_3]$  ( $\Delta_0 > P$ )

(IV)  $(\text{Et}_4\text{N})_2[\text{CoCl}_4]$

Options :

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

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

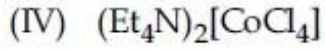
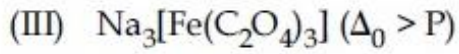
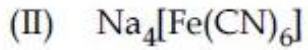
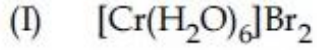
3. (II)  $\approx$  (I) > (IV) > (III)

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

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

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित संकुलों के प्रचक्रण-मात्र चुम्बकीय आघूर्णों का सही क्रम है :



Options :

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

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

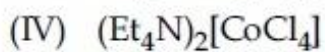
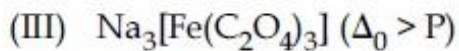
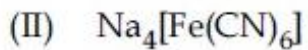
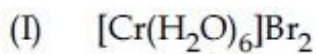
3. (II)  $\approx$  (I) > (IV) > (III)

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

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

Correct Marks : 4 Wrong Marks : 1

नीचे आपेला संकुलोंनी इकत रूपीन चुम्बकीय आकमात्रा नो साथे कम शोधो :



Options :

1.  $(III) > (I) > (IV) > (II)$

2.  $(I) > (IV) > (III) > (II)$

3.  $(II) \approx (I) > (IV) > (III)$

4.  $(III) > (I) > (II) > (IV)$

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

Correct Marks : 4 Wrong Marks : 1

Biochemical Oxygen Demand (BOD) is the amount of oxygen required (in ppm) :

Options :

1. for sustaining life in a water body.

for the photochemical breakdown of waste present in  $1 \text{ m}^3$  volume of a

2. water body.

by bacteria to break-down organic waste in a certain volume of a water

3. sample.

by anaerobic bacteria to breakdown inorganic waste present in a water

4. body.

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

Correct Marks : 4 Wrong Marks : 1

जैवरासायनिक ऑक्सीजन माँग (BOD) आवश्यक ऑक्सीजन की मात्रा (ppm में) है :

Options :

1. एक जलाशय में जीवन को दीर्घकालीन बनाने के लिए।

2. एक जलाशय के  $1 \text{ m}^3$  आयतन में उपस्थित अपशिष्ट के प्रकाशरासायनिक भंजन के लिए।

3. एक जल-प्रतिदर्श के एक निश्चित आयतन में बैक्टीरिया द्वारा कार्बनिक अपशिष्ट के भंजन के लिए।

4. अवायवीय बैक्टीरिया द्वारा एक जलाशय में उपस्थित अकार्बनिक अपशिष्ट के भंजन के लिए।

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

Correct Marks : 4 Wrong Marks : 1

ऑक्सिजननी मात्रा (ppm मां) बायोकेमिकल ऑक्सिजन डीमांड मां नीचेनामांथी अकमां जइरी छे.

Options :

1. जलस्रोतमां छुपन टकावी राभवा

2.  $1 \text{ m}^3$  कदवाणा जलस्रोतमां कथराना प्रकाशरासायणिक विघटन मांटे

3. पाणीना थोक्स कदना नभूनामां कार्बनिक कथरानुं बैक्टीरिया द्वारा विघटन

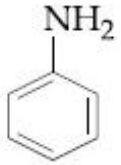
જળસ્ત્રોતમાં હાજર અકાર્બનિક કચરાનું

4. એનએરોબિક બેક્ટેરિયા વડે વિઘટન

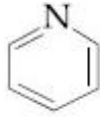
Question Number : 39 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

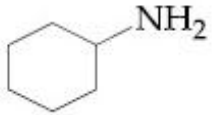
The decreasing order of basicity of the following amines is :



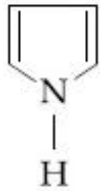
(I)



(II)



(III)



(IV)

Options :

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

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

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

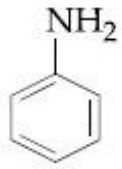
4. (I) > (III) > (IV) > (II)

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

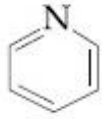
Correct Marks : 4 Wrong Marks : 1



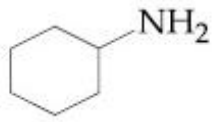
निम्नलिखित ऐमीनों की क्षारकता का घटता क्रम है :



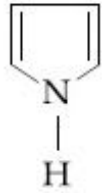
(I)



(II)



(III)



(IV)

Options :

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

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

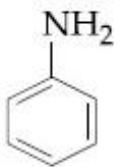
3. (II) > (III) > (IV) > (I)

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

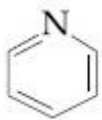
Question Number : 39 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

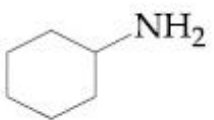
नीचे आपेला ऐमाईनोमां ऐजिक्तानो घटतो क्म शोधो :



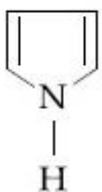
(I)



(II)

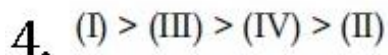
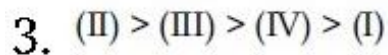
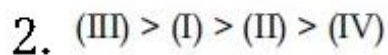
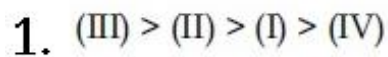


(III)



(IV)

Options :



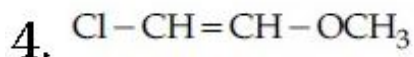
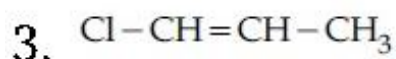
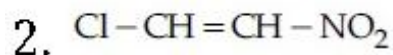
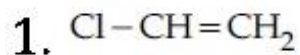
Question Number : 40 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

Which of the following has the shortest

C-Cl bond ?

Options :



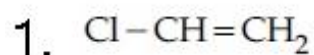
Question Number : 40 Question Type : MCQ Option Shuffling : Yes

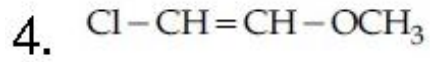
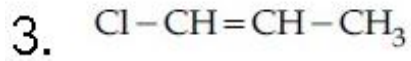
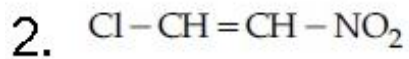
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से किसमें सबसे छोटा C-Cl आबंध

है ?

Options :



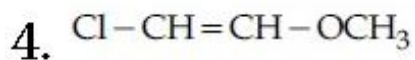
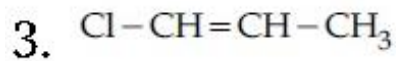
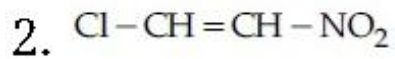
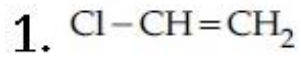


Question Number : 40 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

નીચેના માંથી કોનો C-Cl બંધ ટૂંકામાં ટૂંકો છે?

Options :



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

Correct Marks : 4 Wrong Marks : 1

A, B and C are three biomolecules. The results of the tests performed on them are given below :

	Molisch's Test	Barfoed Test	Biuret Test
A	Positive	Negative	Negative
B	Positive	Positive	Negative
C	Negative	Negative	Positive

A, B and C are respectively :

Options :

1. A = Lactose, B = Glucose, C = Albumin
2. A = Glucose, B = Fructose, C = Albumin
3. A = Lactose, B = Glucose, C = Alanine
4. A = Lactose, B = Fructose, C = Alanine

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

Correct Marks : 4 Wrong Marks : 1

A, B तथा C तीन जैवअणु हैं। उनपर किये गये परीक्षणों का परिणाम नीचे दिये गये हैं :

	मोलिश परीक्षण	बाफोर्ड परीक्षण	बाइयूरेट परीक्षण
A	सकारात्मक	नकारात्मक	नकारात्मक
B	सकारात्मक	सकारात्मक	नकारात्मक
C	नकारात्मक	नकारात्मक	सकारात्मक

A, B तथा C क्रमशः हैं :

Options :

1. A = लैक्टोस, B = ग्लूकोस, C = ऐल्ब्यूमिन

2. A = ગ્લૂકોસ, B = ફ્રુક્ટોઝ, C = એલ્બૂમિન

3. A = લૈક્ટોસ, B = ગ્લૂકોસ, C = એલાનિન

4. A = લૈક્ટોસ, B = ફ્રુક્ટોઝ, C = એલાનિન

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

Correct Marks : 4 Wrong Marks : 1

A, B અને C ત્રણેય જૈવઅણુઓ છે. તેમની ઉપર કસોટી કર્યાબાદ તેના પરિણામો નીચે આપેલા છે.

	મોલિશ કસોટી	બેફોર્ડ કસોટી	બાયયુરેટ કસોટી
A	હકારાત્મક	નકારાત્મક	નકારાત્મક
B	હકારાત્મક	હકારાત્મક	નકારાત્મક
C	નકારાત્મક	નકારાત્મક	હકારાત્મક

A, B અને C અનુક્રમે :

Options :

1. A = લેક્ટોઝ, B = ગ્લુકોઝ, C = આલ્બુમીન

2. A = ગ્લુકોઝ, B = ફ્રુક્ટોઝ, C = આલ્બુમીન

3. A = લેક્ટોઝ, B = ગ્લુકોઝ, C = એલેનાઈન

4. A = લેક્ટોઝ, B = ફ્રુક્ટોઝ, C = એલેનાઈન

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

Correct Marks : 4 Wrong Marks : 1

Which polymer has 'chiral' monomer(s) ?

Options :

1. Neoprene
2. Buna-N
3. Nylon 6, 6
4. PHBV

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

Correct Marks : 4 Wrong Marks : 1

बहुलक जिसके एकलक 'काइरल' हैं, है :

Options :

1. नियोप्रिन
2. ब्यूना-N
3. नाइलॉन 6, 6
4. PHBV (पी.एच.बी.वी.)

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

Correct Marks : 4 Wrong Marks : 1

કયો પોલિમર કીરાલ મોનોમર ધરાવે છે?

Options :

1. નિયોપ્રિન

2. व्युत्पत्ति-N

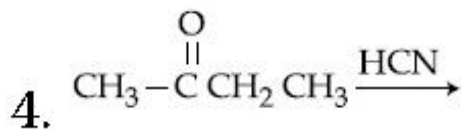
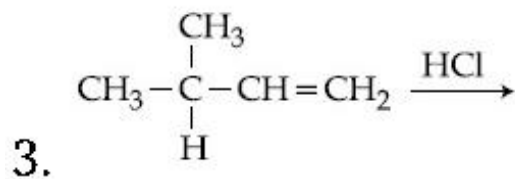
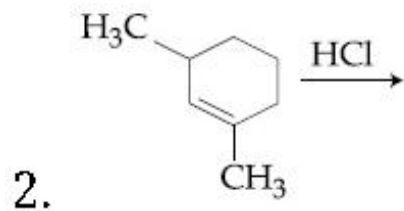
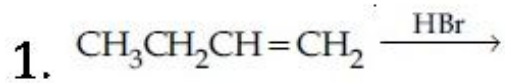
3. नायलोन, 6, 6

4. PHBV (पीएचबीवी)

Question Number : 43 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

Which of the following reactions will not produce a racemic product ?

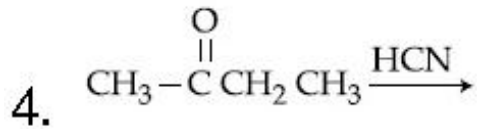
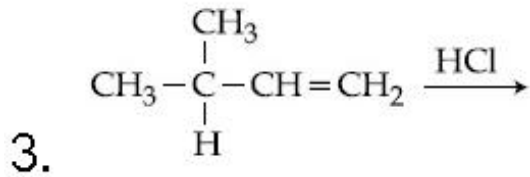
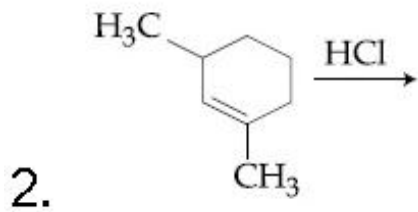
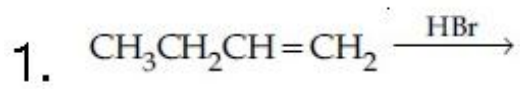
Options :



Question Number : 43 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रियाओं में से कौन एक रैसिमिक उत्पाद नहीं देगी ?

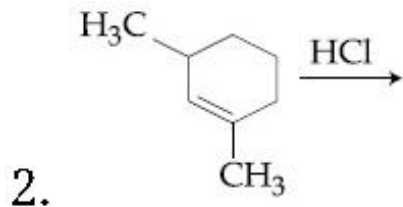
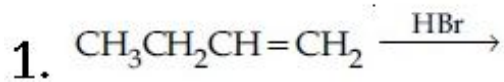
Options :



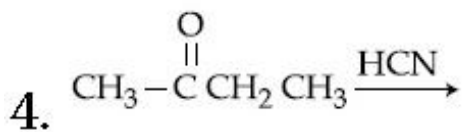
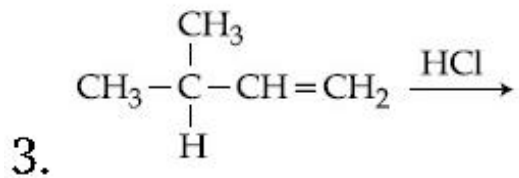
Question Number : 43 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

નીચેના આપેલ પ્રક્રિયાઓમાં કઈ રેસેમિક નીપજ આપશે નહીં?

Options :

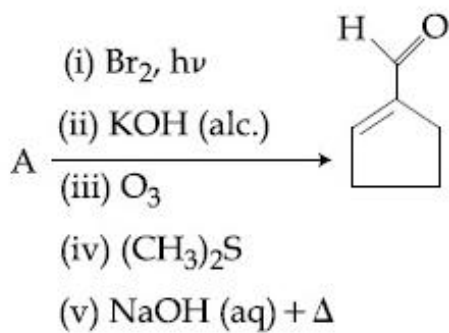




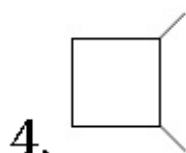
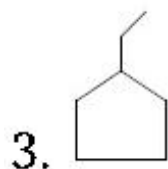
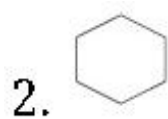
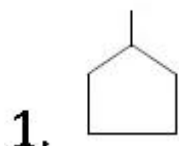


Question Number : 44 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

In the following reaction A is :



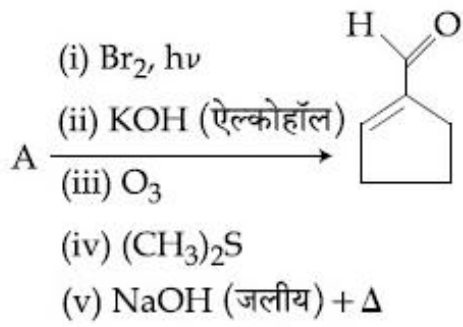
Options :



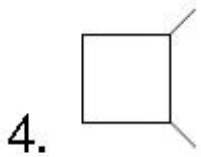
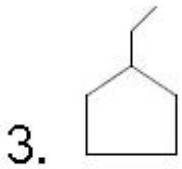
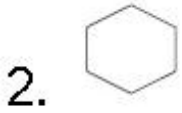
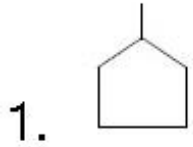
Question Number : 44 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया में A है :



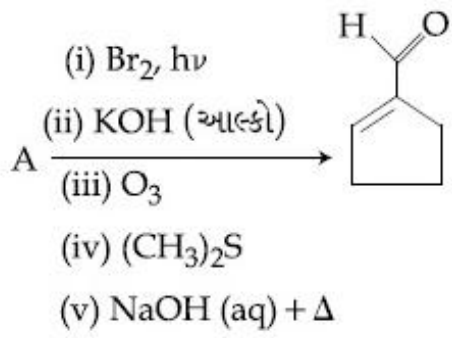
Options :



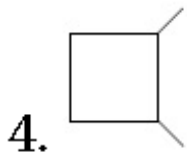
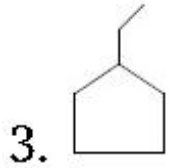
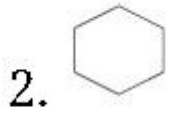
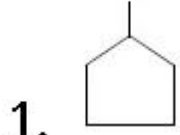
Question Number : 44 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 4 Wrong Marks : 1

નીચે આપેલી પ્રક્રિયામાં A શોધો :

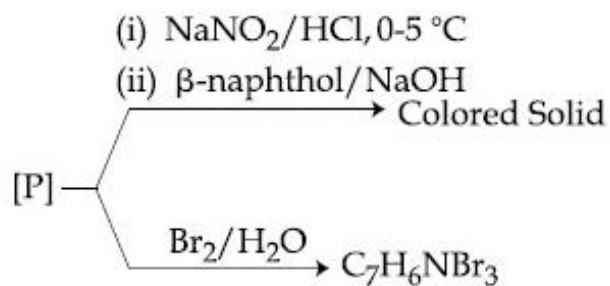


Options :



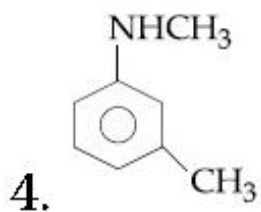
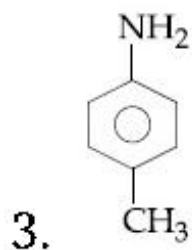
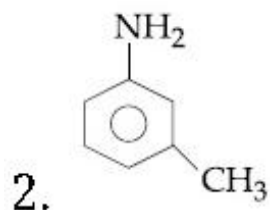
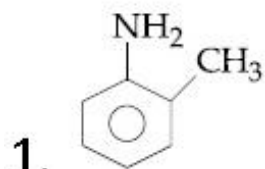
Question Number : 45 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

Consider the following reactions,



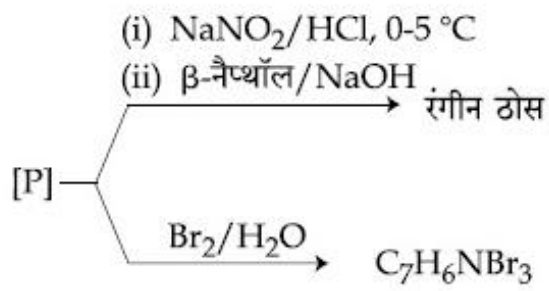
The compound [P] is :

Options :



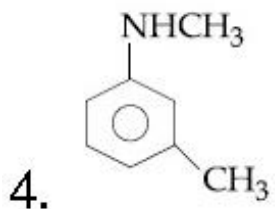
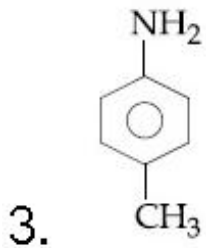
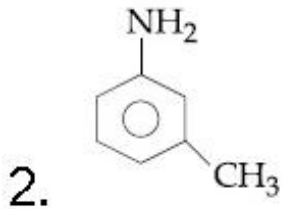
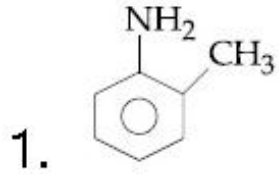
Question Number : 45 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रियाओं पर विचार कीजिए



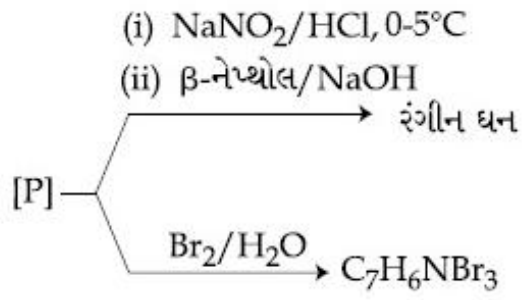
यौगिक [P] है :

Options :



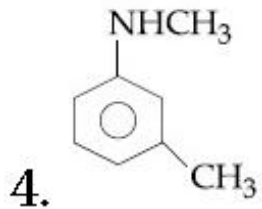
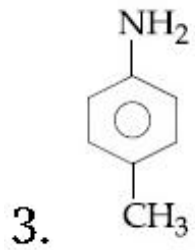
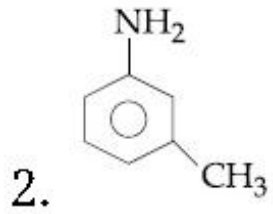
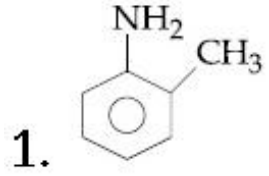
Question Number : 45 Question Type : MCQ Option Shuffling : Yes  
Correct Marks : 4 Wrong Marks : 1

નીચે આપેલી પ્રક્રિયા ધ્યાનમાં લો :



સંયોજન [P] શોધો :

Options :



Sub-Section Number:

2

Sub-Section Id:

405036143

Question Shuffling Allowed :

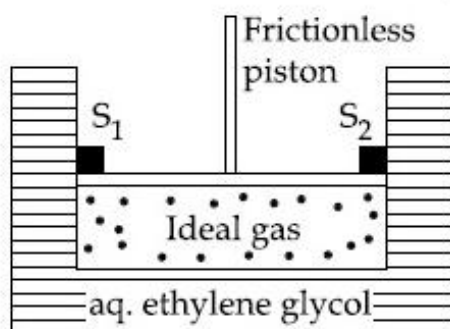
Yes

Question Number : 46 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

A cylinder containing an ideal gas (0.1 mol of  $1.0 \text{ dm}^3$ ) is in thermal equilibrium with a large volume of 0.5 molal aqueous solution of ethylene glycol at its freezing point. If the stoppers  $S_1$  and  $S_2$  (as shown in the figure) are suddenly withdrawn, the volume of the gas in litres after equilibrium is achieved will be \_\_\_\_\_.

(Given,  $K_f(\text{water}) = 2.0 \text{ K kg mol}^{-1}$ ,  $R = 0.08 \text{ dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$ )



Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

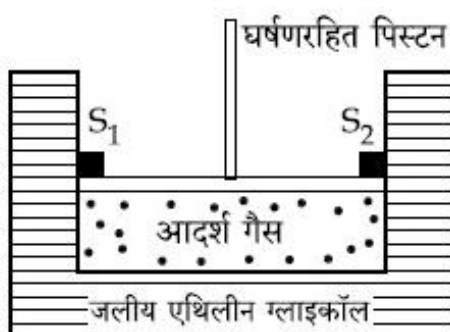
2.17 to 2.23

Question Number : 46 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

एक सिलिन्डर जिसमें एक आदर्श गैस ( $1.0 \text{ dm}^3$  का 0.1 मोल) है, हिमांक ताप पर एथिलीन ग्लाइकोल के 0.5 मोलल विलयन के साथ तापीय साम्यावस्था में है। यदि  $S_1$  तथा  $S_2$  स्टॉपर्स (आकृति में जिस प्रकार दर्शाया गया है) को एकाएक हटा लिया जाता है, तो साम्यावस्था प्राप्त के बाद गैस का आयतन लीटर में होगा \_\_\_\_\_।

(दिया गया है :  $K_f(\text{जल}) = 2.0 \text{ K kg mol}^{-1}$ ,  $R = 0.08 \text{ dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$ )



Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

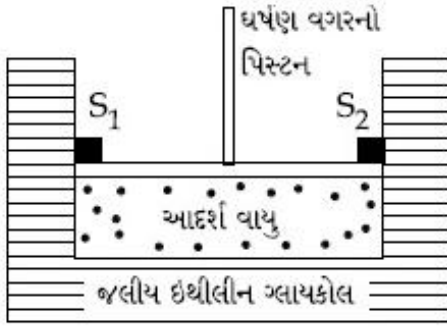
2.17 to 2.23

Question Number : 46 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

વિશાળ કદ ધરાવતા 0.5 મોલલ જલીય ઇથીલીન ગ્લાયકોલ દ્રાવણ તેના ઠારબિંદુ એ નળાકાર માં એક આદર્શ વાયુ (0.1 mol, 1.0 dm<sup>3</sup>) સાથે તેના ઊષ્મીય સંતુલન માં છે. જો સ્ટોપર S<sub>1</sub> અને S<sub>2</sub> (આકૃતિમાં દર્શાવ્યા મુજબ) અચાનક બાહી ખેંચવામાં આવે તો, સંતુલન પ્રાપ્ત કર્યા બાદ થતું વાયુ નું કદ કેટલું

આપેલ  $K_f$  (પાણી) = 2.0 K kg mol<sup>-1</sup>,  
 $R = 0.08 \text{ dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$ )



Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

2.17 to 2.23

Question Number : 47 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

10.30 mg of O<sub>2</sub> is dissolved into a liter of sea water of density 1.03 g/mL. The concentration of O<sub>2</sub> in ppm is \_\_\_\_\_.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

10 to 0

Question Number : 47 Question Type : SA

Correct Marks : 4 Wrong Marks : 0



O<sub>2</sub> के 10.30 mg को 1.03 g/mL घनत्व वाले समुद्र जल के एक लीटर में घोला जाता है। O<sub>2</sub> की ppm में सांद्रता है \_\_\_\_\_।

**Response Type:** Numeric

**Evaluation Required For SA:** Yes

**Show Word Count:** Yes

**Answers Type:** Range

**Possible Answers :**

10 to 0

**Question Number : 47 Question Type : SA**

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

10.30 mg O<sub>2</sub> ને એક લીટર દરિયાના પાણીના જેની ઘનતા 1.03 g/mL છે તેમાં ઓગાળવામાં આવે છે. તો O<sub>2</sub> ની સાંદ્રતા ppm માં શું છે \_\_\_\_\_.

**Response Type:** Numeric

**Evaluation Required For SA:** Yes

**Show Word Count:** Yes

**Answers Type:** Range

**Possible Answers :**

10 to 0

**Question Number : 48 Question Type : SA**

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

A sample of milk splits after 60 min. at 300 K and after 40 min. at 400 K when the population of *lactobacillus acidophilus* in it doubles. The activation energy (in kJ/mol) for this process is closest to \_\_\_\_\_.

(Given,  $R = 8.3 \text{ J mol}^{-1}\text{K}^{-1}$ ,  $\ln\left(\frac{2}{3}\right) = 0.4$ ,

$e^{-3} = 4.0$ )

**Note:** For this question, discrepancy is found in question/answer. So, this question is ignored for all candidates.

**Response Type:** Numeric

**Evaluation Required For SA:** Yes

**Show Word Count:** Yes

**Answers Type:** Range

**Possible Answers :**

1 to 2.01

**Question Number : 48 Question Type : SA**

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

जब लैक्टोबैसिलस एसिडोफिलस, की आबादी दुगुनी होती है तो दूध का एक प्रतिदर्श 300 K पर 60 मिनट के बाद तथा 400 K पर 40 मिनट के बाद विपाटित होता है। इस प्रक्रम के लिए सक्रियण ऊर्जा ( $\text{kJ mol}^{-1}$  में) लगभग है \_\_\_\_\_.

(दिया गया है :  $R = 8.3 \text{ J mol}^{-1}\text{K}^{-1}$  ,

$$\ln\left(\frac{2}{3}\right) = 0.4, e^{-3} = 4.0)$$

Note: For this question, discrepancy is found in question/answer. So, this question is ignored for all candidates.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

1 to 2.01

Question Number : 48 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

दूधનો એક નમૂનો જ્યારે લેક્ટોબેસિલસ એસિડોફિલીસ ની સાંદ્રતા (વસતી) બમણી થાય ત્યારે 300 K પર 60 મિનિટ બાદ અને 400 K એ 40 મિનિટ બાદ ફાટે છે. તો આ પ્રક્રિયા માટેની સક્રિયકરણ શક્તિ ( $\text{kJ mol}^{-1}$ ) કોની નજીક હશે \_\_\_\_\_.

$$(\text{આપેલ, } R = 8.3 \text{ J mol}^{-1}\text{K}^{-1}; \ln\left(\frac{2}{3}\right) = 0.4$$

$$e^{-3} = 4.0)$$

Note: For this question, discrepancy is found in question/answer. So, this question is ignored for all candidates.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

1 to 2.01

Question Number : 49 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The sum of the total number of bonds between chromium and oxygen atoms in chromate and dichromate ions is \_\_\_\_\_.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

12 to 12

Question Number : 49 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

क्रोमेट तथा डाइक्रोमेट में क्रोमियम तथा ऑक्सीजन के बीच आबंधों की कुल संख्याओं का योग है \_\_\_\_\_।

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Possible Answers :

12 to 12

Question Number : 49 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

क्रोमेट અને ડાયક્રોમेट આયનોમાં ક્રોમિયમ અને ઓક્સિજન પરમાણુ ની વચ્ચે આવેલા બંધોની કુલ સંખ્યા નો સરવાળો શોધો \_\_\_\_\_.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

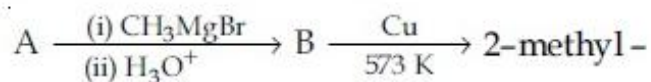
Possible Answers :

12 to 12

Question Number : 50 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Consider the following reactions



2-butene

The mass percentage of carbon in A is \_\_\_\_\_.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

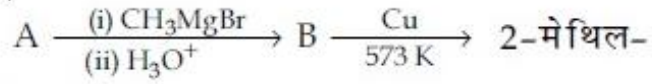
Possible Answers :

66.65 to 66.70

Question Number : 50 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

निम्नलिखित अभिक्रियाओं पर विचार कीजिए



2 -ब्यूटीन

A में कार्बन की संरक्ति प्रतिशतता है \_\_\_\_\_ ।

**Response Type:** Numeric

**Evaluation Required For SA:** Yes

**Show Word Count:** Yes

**Answers Type:** Range

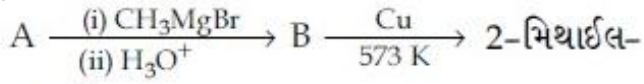
**Possible Answers :**

66.65 to 66.70

**Question Number :** 50 **Question Type :** SA

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

नीचेनी प्रक्रिया ध्यानमां लो.



2 ब्यूटीन

A मां कार्बननी दण टकावारी शोधो \_\_\_\_\_ .

**Response Type:** Numeric

**Evaluation Required For SA:** Yes

**Show Word Count:** Yes

**Answers Type:** Range

**Possible Answers :**

66.65 to 66.70

## Mathematics

<b>Section Id :</b>	40503686
<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>Sub-Section Number:</b>	1
<b>Sub-Section Id:</b>	405036144
<b>Question Shuffling Allowed :</b>	Yes

**Question Number :** 51 **Question Type :** MCQ **Option Shuffling :** Yes

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

If  $A = \{x \in \mathbb{R} : |x| < 2\}$  and

$B = \{x \in \mathbb{R} : |x - 2| \geq 3\}$ ; then :

**Options :**