

## Chemistry

Section Id :	405036395
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 :	405036757
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 40503610881 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

It is true that :

Options :

40503639586.  A zero order reaction is a single step reaction

40503639587.  A zero order reaction is a multistep reaction

40503639588. A first order reaction is always a single step reaction

40503639589. A second order reaction is always a multistep reaction

**Question Number : 26 Question Id : 40503610881 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**

यह सत्य है कि :

**Options :**

40503639586. एक शून्य कोटि की अभिक्रिया एक एकल पद अभिक्रिया है।

40503639587. एक शून्य कोटि अभिक्रिया एक बहुपदीय अभिक्रिया है।

40503639588. एक प्रथम कोटि की अभिक्रिया सदैव एक एकल पद अभिक्रिया है।

40503639589. एक द्वितीय कोटि की अभिक्रिया सदैव एक बहुपदीय अभिक्रिया है।

**Question Number : 27 Question Id : 40503610882 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**

Of the species,  $\text{NO}$ ,  $\text{NO}^+$ ,  $\text{NO}^{2+}$  and  $\text{NO}^-$ ,  
the one with minimum bond strength is :

**Options :**

40503639590.  $\text{NO}$

40503639591.  $\text{NO}^{2+}$

40503639592.  $\text{NO}^-$

40503639593.  $\text{NO}^+$

**Question Number : 27 Question Id : 40503610882 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**

स्पीशीज़  $\text{NO}$ ,  $\text{NO}^+$ ,  $\text{NO}^{2+}$  तथा  $\text{NO}^-$  में, वह  
एक जिसकी आबन्ध सामर्थ्य अल्पतम है, होगी :

**Options :**

40503639590.  $\text{NO}$

40503639591.  $\text{NO}^{2+}$

40503639592.  $\text{NO}^-$

40503639593.  $\text{NO}^+$

**Question Number : 28 Question Id : 40503610883 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

Henry's constant (in kbar) for four gases  $\alpha$ ,  $\beta$ ,  $\gamma$  and  $\delta$  in water at 298 K is given below :

	$\alpha$	$\beta$	$\gamma$	$\delta$
$K_H$	50	2	$2 \times 10^{-5}$	0.5

(density of water =  $10^3 \text{ kg m}^{-3}$  at 298 K)

This table implies that :

Options :

40503639594.  $\alpha$  has the highest solubility in water at a given pressure

40503639595. solubility of  $\gamma$  at 308 K is lower than at 298 K

40503639596. The pressure of a 55.5 molal solution of  $\gamma$  is 1 bar

40503639597. The pressure of a 55.5 molal solution of  $\delta$  is 250 bar

Question Number : 28 Question Id : 40503610883 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

298 K पर जल में चार गैसों  $\alpha$ ,  $\beta$ ,  $\gamma$  तथा  $\delta$  के लिए हेनरी स्थिरांक (kbar में) नीचे दिये गये हैं :

	$\alpha$	$\beta$	$\gamma$	$\delta$
$K_H$	50	2	$2 \times 10^{-5}$	0.5

(298 K पर पानी का घनत्व =  $10^3 \text{ kg m}^{-3}$ )

सारणी से तात्पर्य निकलता है कि :

**Options :**

40503639594. दिये हुए दाब पर  $\alpha$  की पानी में घुलनशीलता उच्चतम है।

40503639595.  $\gamma$  की घुलनशीलता 308 K की तुलना में 298 K पर निम्नतर है।

40503639596.  $\gamma$  के एक 55.5 मोलल विलयन का दाब 1 बार है।

40503639597.  $\delta$  के एक 55.5 मोलल विलयन का दाब 250 बार है।

**Question Number : 29 Question Id : 40503610884 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  $C_{\text{NaCl}}$  and  $C_{\text{BaSO}_4}$  be the conductances (in S) measured for saturated aqueous solutions of NaCl and  $\text{BaSO}_4$ , respectively, at a temperature T.

Which of the following is false ?

Options :

40503639598.  $C_{\text{NaCl}} \gg C_{\text{BaSO}_4}$  at a given T

40503639599.  $C_{\text{BaSO}_4}(T_2) > C_{\text{BaSO}_4}(T_1)$  for  $T_2 > T_1$

40503639600.  $C_{\text{NaCl}}(T_2) > C_{\text{NaCl}}(T_1)$  for  $T_2 > T_1$

40503639601. Ionic mobilities of ions from both salts increase with T.

Question Number : 29 Question Id : 40503610884 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

यदि ताप T पर, NaCl तथा  $\text{BaSO}_4$  के संतृप्त जलीय विलयन के लिए मापी गई चालकताएँ (S में)  $C_{\text{NaCl}}$  तथा  $C_{\text{BaSO}_4}$  हों तो निम्न में से कौन सा गलत है?

Options :

40503639598.  $C_{\text{NaCl}} \gg C_{\text{BaSO}_4}$ , दिये गये ताप T पर

40503639599.  $C_{\text{BaSO}_4}(T_2) > C_{\text{BaSO}_4}(T_1)$ ,  $T_2 > T_1$  के लिए

40503639600.  $C_{\text{NaCl}}(T_2) > C_{\text{NaCl}}(T_1), T_2 > T_1$  के लिए

दोनों लवणों से आयनों की आयनिक गतिशीलताएँ T के साथ बढ़ती है

40503639601.

**Question Number : 30 Question Id : 40503610885 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 acidic buffer is obtained on mixing :

**Options :**

100 mL of 0.1 M HCl and 200 mL of 0.1 M NaCl

40503639602.

100 mL of 0.1 M HCl and 200 mL of 0.1 M  $\text{CH}_3\text{COONa}$

40503639603.

100 mL of 0.1 M  $\text{CH}_3\text{COOH}$  and 200 mL of 0.1 M NaOH

40503639604.

100 mL of 0.1 M  $\text{CH}_3\text{COOH}$  and 100 mL of 0.1 M NaOH

40503639605.

**Question Number : 30 Question Id : 40503610885 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 अम्लीय बफर इनके मिलाने से प्राप्त होता है :



**Options :**

40503639602. 0.1 M HCl का 100 mL तथा 0.1 M NaCl का 200 mL

40503639603. 0.1 M HCl का 100 mL तथा 0.1 M  $\text{CH}_3\text{COONa}$  का 200 mL

40503639604. 0.1 M  $\text{CH}_3\text{COOH}$  का 100 mL तथा 0.1 M NaOH का 200 mL

40503639605. 0.1 M  $\text{CH}_3\text{COOH}$  का 100 mL तथा 0.1 M NaOH का 100 mL

**Question Number : 31 Question Id : 40503610886 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**

Tyndall effect is observed when :

**Options :**

40503639606. The diameter of dispersed particles is much smaller than the wavelength of light used.

40503639607. The diameter of dispersed particles is much larger than the wavelength of light used.



40503639608. The diameter of dispersed particles is similar to the wavelength of light used.

40503639609. The refractive index of dispersed phase is greater than that of the dispersion medium.

**Question Number : 31 Question Id : 40503610886 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**

टिन्डल प्रभाव तब प्रेक्षित किया जाता है जब :

**Options :**

40503639606. प्रयुक्त प्रकाश के तरंगदैर्घ्य की तुलना में परिक्षिप्त कणों का व्यास बहुत छोटा हो।

40503639607. प्रयुक्त प्रकाश के तरंगदैर्घ्य की तुलना में परिक्षिप्त कणों का व्यास बहुत बड़ा हो।

40503639608. प्रयुक्त प्रकाश का तरंगदैर्घ्य परिक्षिप्त कणों के व्यास के ही समान हो।

40503639609. परिक्षेपण माध्यक की तुलना में परिक्षिप्त प्रावस्था का अपवर्तनांक अधिक हो।

**Question Number : 32 Question Id : 40503610887 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 atomic number of the element  
unnilennium is :

**Options :**

40503639610. 102

40503639611. 109

40503639612. 108

40503639613. 119

**Question Number : 32 Question Id : 40503610887 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**

अनिलएनियम तत्व की परमाणु संख्या है :

**Options :**

40503639610. 102

40503639611. 109

40503639612. 108

40503639613. 119

**Question Number : 33 Question Id : 40503610888 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**

If the boiling point of  $H_2O$  is 373 K, the boiling point of  $H_2S$  will be :

**Options :**

40503639614. less than 300 K

40503639615. more than 373 K

40503639616. equal to 373 K

40503639617. greater than 300 K but less than 373 K

**Question Number : 33 Question Id : 40503610888 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**

यदि  $H_2O$  का क्वथनांक 373 K है तो  $H_2S$  का क्वथनांक होगा :

**Options :**

40503639614. 300 K से कम

40503639615. 373 K से ज्यादा

40503639616. 373 K के बराबर

40503639617. 300 K से ज्यादा परन्तु 373 K से कम

**Question Number : 34 Question Id : 40503610889 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**

In a molecule of pyrophosphoric acid, the number of P–OH, P=O and P–O–P bonds/moiety(ies) respectively are :

**Options :**

40503639618. 4, 2 and 0

40503639619. 3, 3 and 3

40503639620. 2, 4 and 1

40503639621. 4, 2 and 1

**Question Number : 34 Question Id : 40503610889 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**

पायरोफास्फोरिक एसिड के अणु में P–OH, P=O तथा P–O–P आबन्धों/अर्धांश (अर्धांशों) की संख्या क्रमशः हैं :

**Options :**

40503639618. 4, 2 तथा 0

40503639619. 3, 3 तथा 3

40503639620. 2, 4 तथा 1

40503639621. 4, 2 तथा 1

**Question Number : 35 Question Id : 40503610890 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**

Aqua regia is used for dissolving noble metals (Au, Pt, etc.). The gas evolved in this process is :

**Options :**

40503639622.  $N_2O_3$

40503639623. NO

40503639624.  $N_2O_5$

40503639625.  $N_2$

**Question Number : 35 Question Id : 40503610890 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**

नोबल धातुओं (Au, Pt, आदि) को घोलने के लिए एक्वा रेजिआ काम में लाई जाती है। इस प्रक्रम में निकलने वाली गैस है :

**Options :**

40503639622.  $N_2O_3$

40503639623. NO

40503639624. N<sub>2</sub>O<sub>5</sub>

40503639625. N<sub>2</sub>

**Question Number : 36 Question Id : 40503610891 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 complex that can show optical activity is :

**Options :**

40503639626. *cis*-[Fe(NH<sub>3</sub>)<sub>2</sub>(CN)<sub>4</sub>]<sup>-</sup>

40503639627. *cis*-[CrCl<sub>2</sub>(ox)<sub>2</sub>]<sup>3-</sup> (ox = oxalate)

40503639628. *trans*-[Fe(NH<sub>3</sub>)<sub>2</sub>(CN)<sub>4</sub>]<sup>-</sup>

40503639629. *trans*-[Cr(Cl<sub>2</sub>)(ox)<sub>2</sub>]<sup>3-</sup>

**Question Number : 36 Question Id : 40503610891 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**

वह संकर जो ध्रुवण घूर्णकता प्रदर्शित कर सकता है, होगा :

**Options :**

40503639626. *सिस*-[Fe(NH<sub>3</sub>)<sub>2</sub>(CN)<sub>4</sub>]<sup>-</sup>

40503639627. *सिस*-[CrCl<sub>2</sub>(ox)<sub>2</sub>]<sup>3-</sup> (ox = oxalate)

40503639628. *ट्रांस*-[Fe(NH<sub>3</sub>)<sub>2</sub>(CN)<sub>4</sub>]<sup>-</sup>

40503639629. *ट्रांस*-[Cr(Cl<sub>2</sub>)(ox)<sub>2</sub>]<sup>3-</sup>

**Question Number : 37 Question Id : 40503610892 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 electronic spectrum of [Ti(H<sub>2</sub>O)<sub>6</sub>]<sup>3+</sup> shows a single broad peak with a maximum at 20,300 cm<sup>-1</sup>. The crystal field stabilization energy (CFSE) of the complex ion, in kJ mol<sup>-1</sup>, is :

(1 kJ mol<sup>-1</sup> = 83.7 cm<sup>-1</sup>)

**Options :**

40503639630. 145.5

40503639631. 83.7

40503639632. 242.5

40503639633. 97



Question Number : 37 Question Id : 40503610892 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

$[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  का इलेक्ट्रॉनिक स्पेक्ट्रम एक विस्तृत पीक (ब्रॉड पीक) प्रदर्शित करता है जिसका उच्चतम  $20,300 \text{ cm}^{-1}$  पर है। संकुल की क्रिस्टल क्षेत्र स्थायीकरण ऊर्जा (CFSE) ( $\text{kJ mol}^{-1}$  में) होगी :  
( $1 \text{ kJ mol}^{-1} = 83.7 \text{ cm}^{-1}$ )

Options :

40503639630. 145.5

40503639631. 83.7

40503639632. 242.5

40503639633. 97

Question Number : 38 Question Id : 40503610893 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

Thermal power plants can lead to :

Options :

40503639634. Acid rain

40503639635. Eutrophication

40503639636. Blue baby syndrome

40503639637. Ozone layer depletion

Question Number : 38 Question Id : 40503610893 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

तापीय विद्युत संयंत्रों से यह हो सकता है :

Options :

40503639634. अम्ल वर्षा

40503639635. सुपोषण

40503639636. ब्लू बेबी सिन्ड्रोम

40503639637. ओजोन परत अवक्षय

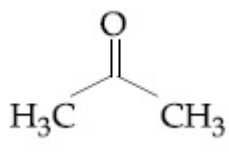
Question Number : 39 Question Id : 40503610894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

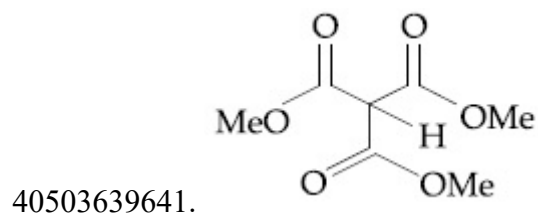
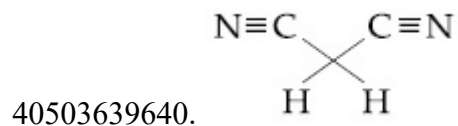
Correct Marks : 4 Wrong Marks : 1

Which one of the following compounds possesses the most acidic hydrogen ?

Options :

40503639638.  $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{H}$

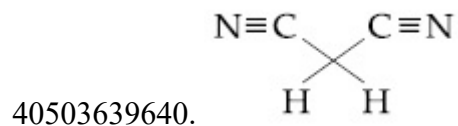
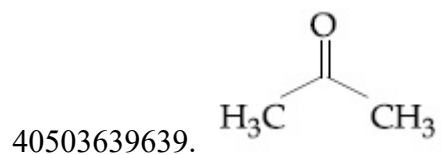
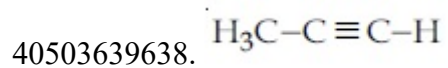
40503639639. 

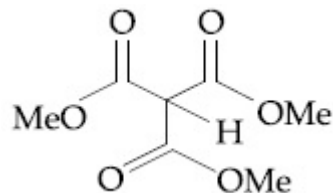


**Question Number : 39 Question Id : 40503610894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

निम्न यौगिकों में से किस में सर्वाधिक अम्लीय हाइड्रोजन है?

**Options :**





40503639641.

**Question Number : 40 Question Id : 40503610895 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**

Glycerol is separated in soap industries

by :

**Options :**

40503639642. Differential extraction

40503639643. Fractional distillation

40503639644. Distillation under reduced pressure

40503639645. Steam distillation

**Question Number : 40 Question Id : 40503610895 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**

सोप उद्योग में ग्लिसरॉल निम्न में से किसके द्वारा प्रथक किया जाता है?

**Options :**

40503639642. विभेदी निष्कर्षण

40503639643. प्रभाजी आसवन

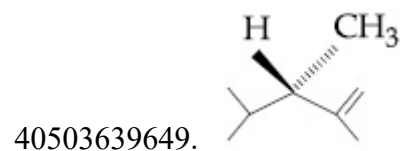
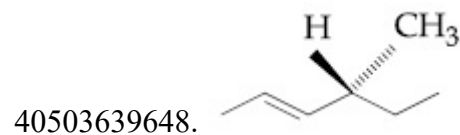
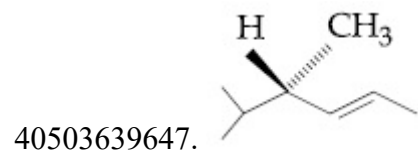
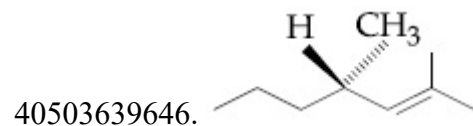
40503639644. कम दाब पर आसवन

40503639645. वाष्प आसवन

**Question Number : 41 Question Id : 40503610896 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**

Which of the following compounds produces an optically inactive compound on hydrogenation ?

Options :

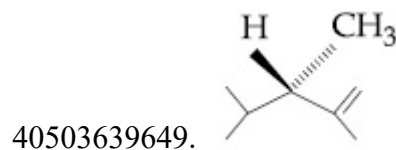
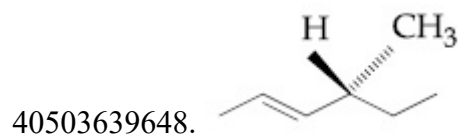
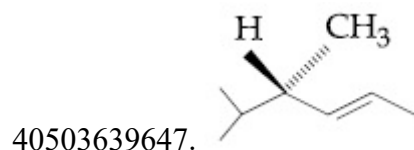
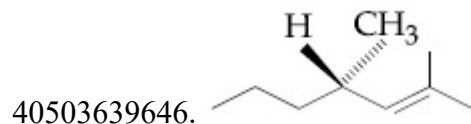


Question Number : 41 Question Id : 40503610896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

हाइड्रोजनीकरण पर निम्न में से कौन सा यौगिक ध्रुवण अघूर्णक यौगिक उत्पन्न करता है?

Options :

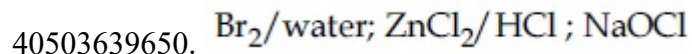


Question Number : 42 Question Id : 40503610897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The antifertility drug "Novestrol" can react with :

Options :



40503639651.  $\text{Br}_2/\text{water}; \text{ZnCl}_2/\text{HCl}; \text{FeCl}_3$

40503639652.  $\text{ZnCl}_2/\text{HCl}; \text{FeCl}_3; \text{Alcoholic HCN}$

40503639653.  $\text{Alcoholic HCN}; \text{NaOCl}; \text{ZnCl}_2/\text{HCl}$

**Question Number : 42 Question Id : 40503610897 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**

प्रतिजनन औषध 'नोवेस्ट्रॉल' जिनसे अभिक्रिया कर सकता है वे हैं :

**Options :**

40503639650.  $\text{Br}_2/\text{जल}; \text{ZnCl}_2/\text{HCl}; \text{NaOCl}$

40503639651.  $\text{Br}_2/\text{जल}; \text{ZnCl}_2/\text{HCl}; \text{FeCl}_3$

40503639652.  $\text{ZnCl}_2/\text{HCl}; \text{FeCl}_3; \text{ऐल्कोहॉलिक HCN}$

40503639653.  $\text{ऐल्कोहॉलिक HCN}; \text{NaOCl}; \text{ZnCl}_2/\text{HCl}$

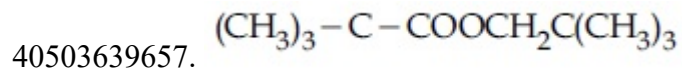
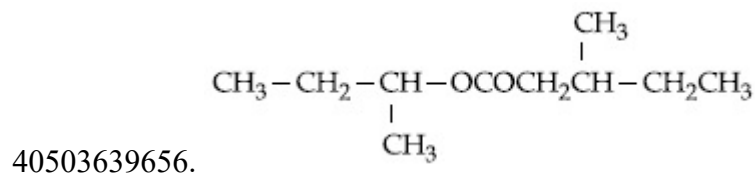
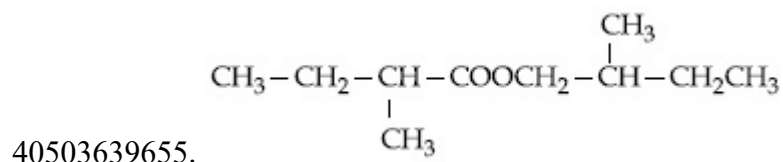
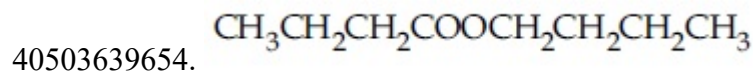
**Question Number : 43 Question Id : 40503610898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



An organic compound [A], molecular formula  $C_{10}H_{20}O_2$  was hydrolyzed with dilute sulphuric acid to give a carboxylic acid [B] and an alcohol [C]. Oxidation of [C] with  $CrO_3 - H_2SO_4$  produced [B]. Which of the following structures are not possible for [A] ?

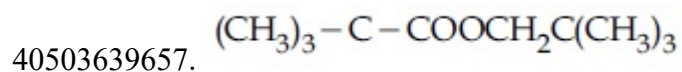
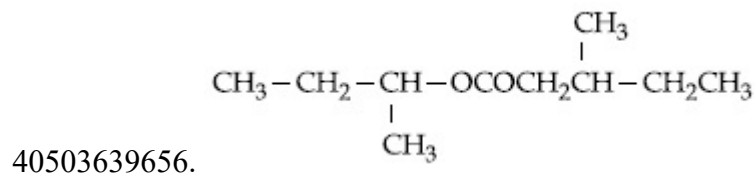
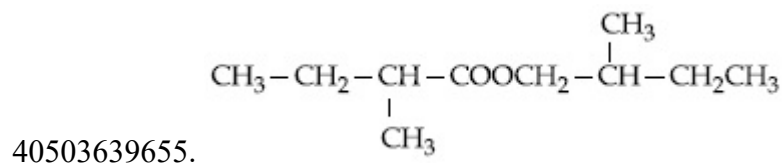
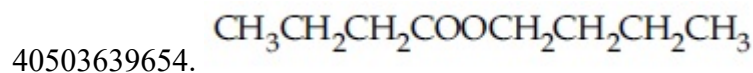
Options :



Question Number : 43 Question Id : 40503610898 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

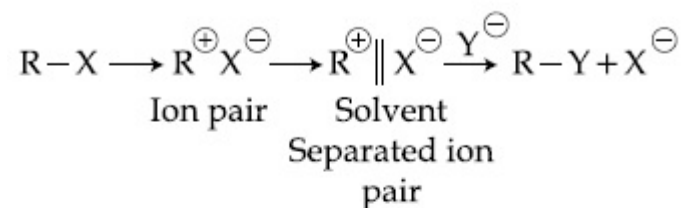
एक कार्बनिक यौगिक [A] जिसका अणुसूत्र  $C_{10}H_{20}O_2$  है तनु सल्फ्यूरिक अम्ल के साथ जल अपघटित करने पर एक कार्बोक्सिलिक अम्ल [B] तथा एक ऐल्कोहॉल [C] देता है। [C] का  $CrO_3 - H_2SO_4$  के साथ ऑक्सीकरण [B] उत्पन्न किया। निम्न संरचनाओं में से कौन [A] के लिये संभव नहीं हैं?

Options :



Question Number : 44 Question Id : 40503610899 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 mechanism of  $S_N1$  reaction is given as :



A student writes general characteristics based on the given mechanism as :

- (a) The reaction is favoured by weak nucleophiles.
- (b)  $\text{R}^{\oplus}$  would be easily formed if the substituents are bulky.
- (c) The reaction is accompanied by racemization.
- (d) The reaction is favoured by non-polar solvents.

Which observations are correct ?

**Options :**

40503639658. (a) and (b)

40503639659. (b) and (d)

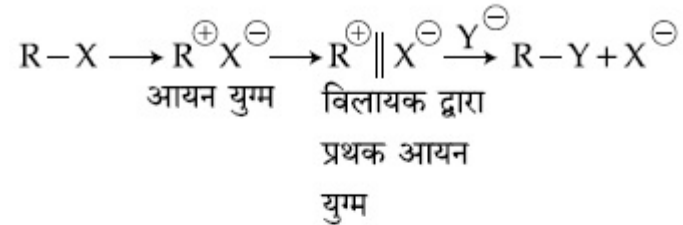
40503639660. (a), (b) and (c)

40503639661. (a) and (c)

Question Number : 44 Question Id : 40503610899 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

$S_N1$  अभिक्रिया की क्रियाविधि इस प्रकार दी जाती है



दी हुई क्रियाविधि के आधार पर एक विद्यार्थी सामान्य गुण-धर्म इस प्रकार लिखता है :

- (a) अभिक्रिया दुर्बल नाभिकस्नेहियों से समर्थित होती है।
- (b)  $R^{\oplus}$  आसानी से बन जायेंगे यदि प्रतिस्थापी स्थूल हैं।
- (c) अभिक्रिया रेसिमीकरण के साथ होती है।
- (d) अभिक्रिया अध्रुवी विलायकों द्वारा अनुकूल पड़ती है।

कौन-से प्रेक्षण सही हैं ?

Options :

40503639658. (a) तथा (b)

40503639659. (b) तथा (d)

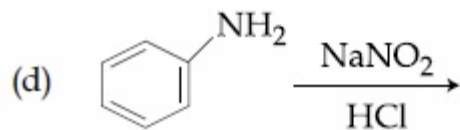
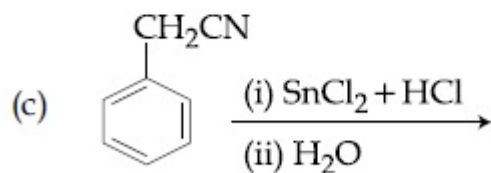
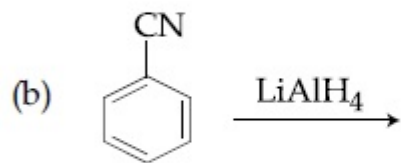
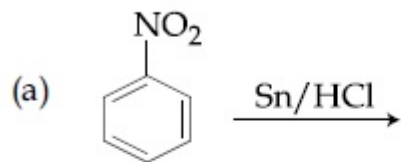
40503639660. (a), (b) तथा (c)

40503639661. (a) तथा (c)

Question Number : 45 Question Id : 40503610900 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 Kjeldahl method of Nitrogen estimation fails for which of the following reaction products ?



Options :

40503639662. (a) and (d)

40503639663. (c) and (d)

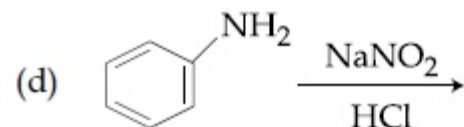
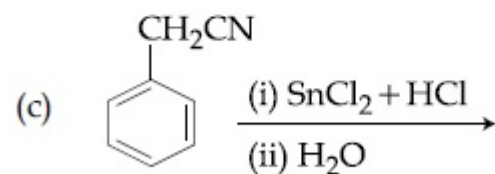
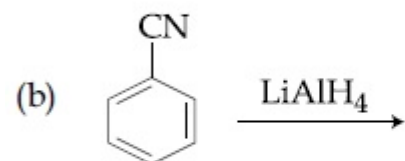
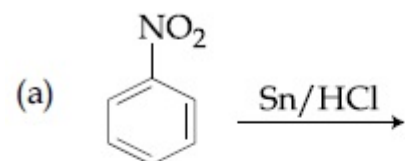
40503639664. (b) and (c)

40503639665. (a), (c) and (d)

Question Number : 45 Question Id : 40503610900 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

निम्नांकित किन अभिक्रिया उत्पादों के लिए नाइट्रोजन आकलन की केलडाल विधि असफल रहती है?



Options :

40503639662. (a) तथा (d)

40503639663. (c) तथा (d)

40503639664. (b) तथा (c)

40503639665. (a), (c) तथा (d)

**Sub-Section Number :** 2  
**Sub-Section Id :** 405036758  
**Question Shuffling Allowed :** Yes

**Question Number : 46 Question Id : 40503610901 Question Type : SA Display Question Number : Yes**

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

The mole fraction of glucose ( $C_6H_{12}O_6$ ) in an aqueous binary solution is 0.1. The mass percentage of water in it, to the nearest integer, 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 : 46 Question Id : 40503610901 Question Type : SA Display Question Number : Yes**

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



एक जलीय द्विआधारी विलयन में ग्लूकोस ( $C_6H_{12}O_6$ ) का मोल प्रभांश (मोल फ्रैक्शन) 0.1 है। इसमें पानी की द्रव्यमान प्रतिशतता (निकटतम पूर्णांक), में होगी \_\_\_\_\_।

**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 :** 40503610902 **Question Type :** SA Display **Question Number :** Yes

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

An element with molar mass  $2.7 \times 10^{-2} \text{ kg mol}^{-1}$  forms a cubic unit cell with edge length 405 pm. If its density is  $2.7 \times 10^3 \text{ kg m}^{-3}$ , the radius of the element is approximately \_\_\_\_\_  $\times 10^{-12} \text{ m}$  (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 :** 40503610902 **Question Type :** SA Display **Question Number :** Yes

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

एक तत्व, जिसका मोलर द्रव्यमान  $2.7 \times 10^{-2} \text{ kg mol}^{-1}$  है, 405 pm कोर लम्बाई का एक घन एकक सेल बनाता है। यदि इसका (तत्व का) घनत्व  $2.7 \times 10^3 \text{ kg m}^{-3}$  है, तो तत्व की त्रिज्या लगभग होगी \_\_\_\_\_  $\times 10^{-12} \text{ m}$  (निकटतम पूर्णांक में)।

**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 :** 40503610903 **Question Type :** SA **Display Question Number :** Yes

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

The photoelectric current from Na (work function,  $w_0 = 2.3 \text{ eV}$ ) is stopped by the output voltage of the cell

$\text{Pt(s)}|\text{H}_2(\text{g}, 1 \text{ bar})|\text{HCl}(\text{aq}, \text{pH} = 1)|\text{AgCl}(\text{s})|\text{Ag}(\text{s})$ .

The pH of aq. HCl required to stop the photoelectric current from K ( $w_0 = 2.25 \text{ eV}$ ), all other conditions remaining the same, is \_\_\_\_\_  $\times 10^{-2}$  (to the nearest integer).

Given,

$$2.303 \frac{RT}{F} = 0.06 \text{ V}; E_{\text{AgCl}|\text{Ag}|\text{Cl}^-}^0 = 0.22 \text{ V}$$

**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 :** 40503610903 **Question Type :** SA **Display Question Number :** Yes

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

Na (कार्य फलन  $w_0 = 2.3 \text{ eV}$ ) से निकली प्रकाश विद्युत धारा सेल

$\text{Pt(s)}|\text{H}_2(\text{g}, 1 \text{ बार})|\text{HCl}(\text{aq.}, \text{pH} = 1)|\text{AgCl}(\text{s})|\text{Ag}(\text{s})$  से उत्पन्न वोल्टेज द्वारा रोक दी जाती है। यदि सभी शर्तें वही रहें, तो  $K(w_0 = 2.25 \text{ eV})$  से प्रकाश विद्युत धारा को रोकने के लिए HCl का pH होगा \_\_\_\_\_  $\times 10^{-2}$  (निकटतम पूर्णांक में) दिया गया है,

$$2.303 \frac{RT}{F} = 0.06 \text{ V}; E^0_{\text{AgCl}|\text{Ag}|\text{Cl}^-} = 0.22 \text{ V}$$

**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 :** 40503610904 **Question Type :** SA **Display Question Number :** Yes

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

The volume strength of 8.9 M  $\text{H}_2\text{O}_2$  solution calculated at 273 K and 1 atm is \_\_\_\_\_. ( $R = 0.0821 \text{ L atm K}^{-1} \text{ mol}^{-1}$ ) (rounded off 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 : 49 Question Id : 40503610904 Question Type : SA Display Question Number : Yes**

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

273 K तथा 1 atm पर परिकलित 8.9 M H<sub>2</sub>O<sub>2</sub>

विलयन की आयतन सामर्थ्य है \_\_\_\_\_

(निकटतम पूर्णांक में)।

(R=0.0821 L atm K<sup>-1</sup> mol<sup>-1</sup>)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

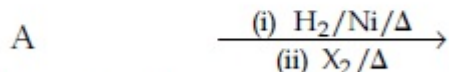
**Possible Answers :**

5 to 5.002

**Question Number : 50 Question Id : 40503610905 Question Type : SA Display Question Number : Yes**

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

The total number of monohalogenated organic products in the following (including stereoisomers) reaction is \_\_\_\_\_.



(Simplest optically active alkene)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

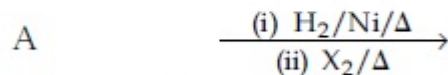
Possible Answers :

5 to 5.002

Question Number : 50 Question Id : 40503610905 Question Type : SA Display Question Number : Yes

Correct Marks : 4 Wrong Marks : 0

निम्न अभिक्रिया में एकहैलोजनीकृत कार्बनिक उत्पादों  
(त्रिविम समावयवियों को मिलाकर) की कुल संख्या  
होगी \_\_\_\_\_।



(एक सरलतम ध्रुवण घूर्णक  
एल्कीन)

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

Section Id :	405036396
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25