

National Testing Agency

Question Paper Name :	BTECH E 2nd Sep 2020 Shift 2
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BTECH

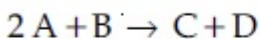
Group Number :	1
Group Id :	405036116
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No

Chemistry

Section Id :	405036389
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 :	405036745
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 40503610731 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 results given in the below table were obtained during kinetic studies of the following reaction :



Experiment	[A]/ molL ⁻¹	[B]/ molL ⁻¹	Initial rate/ molL ⁻¹ min ⁻¹
I	0.1	0.1	6.00×10^{-3}
II	0.1	0.2	2.40×10^{-2}
III	0.2	0.1	1.20×10^{-2}
IV	X	0.2	7.20×10^{-2}
V	0.3	Y	2.88×10^{-1}

X and Y in the given table are respectively :

Options :

40503639076. 0.4, 0.4

40503639077. 0.4, 0.3

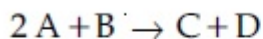
40503639078. 0.3, 0.3

40503639079. 0.3, 0.4

Question Number : 26 Question Id : 40503610731 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 के गतिक अध्ययन के दौरान नीचे सारणी में दिये गये परिणाम प्राप्त हुए :



प्रयोग	[A]/ molL ⁻¹	[B]/ molL ⁻¹	आरम्भिक दर/ molL ⁻¹ min ⁻¹
I	0.1	0.1	6.00×10^{-3}
II	0.1	0.2	2.40×10^{-2}
III	0.2	0.1	1.20×10^{-2}
IV	X	0.2	7.20×10^{-2}
V	0.3	Y	2.88×10^{-1}

दी गई सारणी में X तथा Y क्रमशः हैं :

Options :

40503639076. 0.4, 0.4

40503639077. 0.4, 0.3

40503639078. 0.3, 0.3

40503639079. 0.3, 0.4

**Question Number : 27 Question Id : 40503610732 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 size of a raw mango shrinks to a much smaller size when kept in a concentrated salt solution. Which one of the following processes can explain this ?

Options :

40503639080. Dialysis

40503639081. Diffusion

40503639082. Osmosis

40503639083. Reverse osmosis

**Question Number : 27 Question Id : 40503610732 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

जब कच्चे आम को सान्द्र लवण के विलयन में रखा जाता है तो उसका साइज़ सिकुड़ कर बहुत कम हो जाता है। नीचे दिये गये किस प्रक्रम का उपयोग करके इसके कारण को बताया जा सकता है?

Options :

40503639080. अपोहन

40503639081. विसरण

40503639082. परासरण

40503639083. उत्क्रम परासरण

Question Number : 28 Question Id : 40503610733 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

Amongst the following statements regarding adsorption, those that are valid are :

- (a) ΔH becomes less negative as adsorption proceeds.
- (b) On a given adsorbent, ammonia is adsorbed more than nitrogen gas.
- (c) On adsorption, the residual force acting along the surface of the adsorbent increases.
- (d) With increase in temperature, the equilibrium concentration of adsorbate increases.

Options :

40503639084. (a) and (b)

40503639085. (b) and (c)

40503639086. (c) and (d)

40503639087. (d) and (a)

Question Number : 28 Question Id : 40503610733 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

अधिशोषण के संबंध में नीचे दिये गये कथनों में से जो मान्य हैं वह है :

- (a) जैसे जैसे अधिशोषण होता है ΔH का मान कम ऋणात्मक होता जाता है।
- (b) किसी दिये गये अधिशोषक पर, नाइट्रोजन गैस की अपेक्षा अमोनिया का अधिशोषण अधिक होता है।
- (c) अधिशोषण होने पर, अधिशोषक के पृष्ठ के साथ कार्य करने वाला अवशिष्ट बल बढ़ जाता है।
- (d) ताप के बढ़ने पर, अधिशोष्य का साम्य सान्द्रण बढ़ जाता है।

Options :

40503639084. (a) तथा (b)

40503639085. (b) तथा (c)

40503639086. (c) तथा (d)

40503639087. (d) तथा (a)

Question Number : 29 Question Id : 40503610734 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 molecular geometry of SF_6 is octahedral. What is the geometry of SF_4 (including lone pair(s) of electrons, if any)?

Options :

40503639088. Square planar

40503639089. Pyramidal

40503639090. Tetrahedral

40503639091. Trigonal bipyramidal

Question Number : 29 Question Id : 40503610734 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

SF_6 की आण्विक ज्यामिति अष्टफलकीय है। SF_4 की ज्यामिति (इलेक्ट्रॉनों के एकल युग्म(मों) के सहित, यदि कोई है) क्या है?

Options :

40503639088. वर्ग समतलीय

40503639089. पिरैमिडी

40503639090. चतुष्फलकीय

40503639091. त्रिसमनताक्ष द्विपिरैमिडी

Question Number : 30 Question Id : 40503610735 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 number of subshells associated with $n=4$ and $m = -2$ quantum numbers is :

Options :

40503639092. 2

40503639093. 4

40503639094. 8

40503639095. 16

Question Number : 30 Question Id : 40503610735 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

क्वांटम संख्या $n=4$ तथा $m=-2$ के साथ सहचारी
उपकोशिकाओं की संख्या है :

Options :

40503639092. 2

40503639093. 4

40503639094. 8

40503639095. 16

**Question Number : 31 Question Id : 40503610736 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 type of interaction in column A
with the distance dependence of their
interaction energy in column B :

A	B
(I) ion-ion	(a) $\frac{1}{r}$
(II) dipole - dipole	(b) $\frac{1}{r^2}$
(III) London dispersion	(c) $\frac{1}{r^3}$
	(d) $\frac{1}{r^6}$

Options :

40503639096. (I)-(a), (II)-(b), (III)-(d)

40503639097. (I)-(a), (II)-(c), (III)-(d)

40503639098. (I)-(b), (II)-(d), (III)-(c)

40503639099. (I)-(a), (II)-(b), (III)-(c)

Question Number : 31 Question Id : 40503610736 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

कालम A के अन्योन्यक्रिया के प्रकार को कालम B में उनके अन्योन्यक्रिया ऊर्जा की दूरी निर्भरता के साथ सुमेलित कीजिए :

A	B
(I) आयन-आयन	(a) $\frac{1}{r}$
(II) द्विध्रुव-द्विध्रुव	(b) $\frac{1}{r^2}$
(III) लंडन-परिक्षेपण	(c) $\frac{1}{r^3}$
	(d) $\frac{1}{r^6}$

Options :

40503639096. (I)-(a), (II)-(b), (III)-(d)

40503639097. (I)-(a), (II)-(c), (III)-(d)

40503639098. (I)-(b), (II)-(d), (III)-(c)

40503639099. (I)-(a), (II)-(b), (III)-(c)

Question Number : 32 Question Id : 40503610737 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 elements X, Y and Z are in the 3rd period of the periodic table. The oxides of X, Y and Z, respectively, are basic, amphoteric and acidic. The correct order of the atomic numbers of X, Y and Z is :

Options :

40503639100. $X < Y < Z$

40503639101. $Z < Y < X$

40503639102. $X < Z < Y$

40503639103. $Y < X < Z$

Question Number : 32 Question Id : 40503610737 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 तत्व X, Y तथा Z आवर्त सारणी के तृतीय आवर्तक में हैं। X, Y तथा Z की ऑक्साइड क्रमशः क्षारीय, उभयधर्मी तथा अम्लीय हैं। X, Y तथा Z के परमाणु संख्याओं का सही क्रम है :

Options :

40503639100. $X < Y < Z$

40503639101. $Z < Y < X$

40503639102. $X < Z < Y$

40503639103. $Y < X < Z$

Question Number : 33 Question Id : 40503610738 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

Cast iron is used for the manufacture of :

Options :

40503639104. wrought iron and steel

40503639105. wrought iron and pig iron

40503639106. pig iron, scrap iron and steel

40503639107. wrought iron, pig iron and steel

**Question Number : 33 Question Id : 40503610738 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

ढलवाँ लोहे को किसके उत्पादन के लिए उपयोग में लाया जाता है?

Options :

40503639104. पिटवाँ लोहा तथा इस्पात

40503639105. पिटवाँ लोहा तथा कच्चा लोहा

40503639106. कच्चा लोहा, स्क्रेप लोहा तथा इस्पात

40503639107. पिटवाँ लोहा, कच्चा लोहा तथा इस्पात

**Question Number : 34 Question Id : 40503610739 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 you spill a chemical toilet cleaning liquid on your hand, your first aid would be :

Options :

40503639108. aqueous NaOH

40503639109. aqueous NH₃

40503639110. aqueous NaHCO₃

40503639111. vinegar

**Question Number : 34 Question Id : 40503610739 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 आप शौचालय को साफ करने वाले एक रासायनिक द्रव को अपने हाथ पर गिरा लेते हैं, तो आपका प्राथमिक उपचार होगा :

Options :

40503639108. जलीय NaOH

40503639109. जलीय NH_3

40503639110. जलीय NaHCO_3

40503639111. सिरका

Question Number : 35 Question Id : 40503610740 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

Two elements A and B have similar chemical properties. They don't form solid hydrogencarbonates, but react with nitrogen to form nitrides. A and B, respectively, are :

Options :

40503639112. Na and Rb

40503639113. Na and Ca

40503639114. Li and Mg

40503639115. Cs and Ba

Question Number : 35 Question Id : 40503610740 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

दो तत्व A तथा B के समान रासायनिक गुण हैं। वे ठोस हाइड्रोजनकार्बोनेट नहीं बनाते हैं, परन्तु नाइट्रोजन के साथ अभिक्रिया करके नाइट्राइड बनाते हैं। A तथा B क्रमशः हैं :

Options :

40503639112. Na तथा Rb

40503639113. Na तथा Ca

40503639114. Li तथा Mg

40503639115. Cs तथा Ba

Question Number : 36 Question Id : 40503610741 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 shape/structure of $[\text{XeF}_5]^-$ and XeO_3F_2 , respectively, are :

Options :

40503639116. trigonal bipyramidal and trigonal bipyramidal

40503639117. pentagonal planar and trigonal bipyramidal

40503639118. trigonal bipyramidal and pentagonal planar

40503639119. octahedral and square pyramidal

Question Number : 36 Question Id : 40503610741 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

$[\text{XeF}_5]^-$ तथा XeO_3F_2 का आकार/संरचना क्रमशः
हैं :

Options :

40503639116. त्रिसमनताक्ष द्विपिरैमिडी तथा त्रिसमनताक्ष
द्विपिरैमिडी

40503639117. पंचकोणीय समतलीय तथा त्रिसमनताक्ष
द्विपिरैमिडी

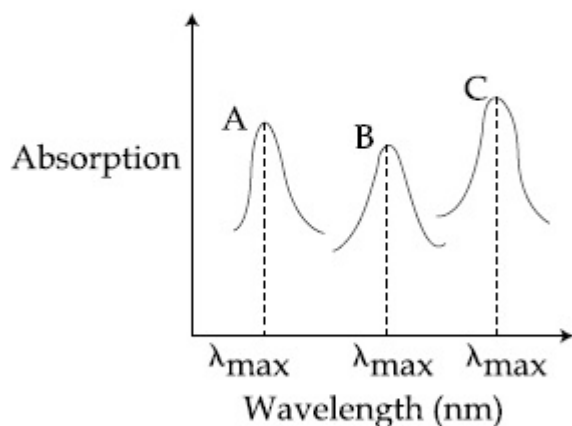
40503639118. त्रिसमनताक्ष द्विपिरैमिडी तथा पंचकोणीय
समतलीय

40503639119. अष्टफलकीय तथा वर्ग पिरैमिडी

Question Number : 37 Question Id : 40503610742 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

Simplified absorption spectra of three complexes ((i), (ii) and (iii)) of M^{n+} ion are provided below; their λ_{max} values are marked as A, B and C respectively. The correct match between the complexes and their λ_{max} values is :



- (i) $[\text{M}(\text{NCS})_6]^{(-6+n)}$
- (ii) $[\text{MF}_6]^{(-6+n)}$
- (iii) $[\text{M}(\text{NH}_3)_6]^{n+}$

Options :

40503639120. A-(i), B-(ii), C-(iii)

40503639121. A-(ii), B-(i), C-(iii)

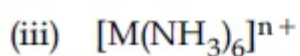
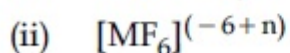
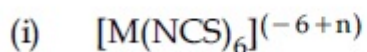
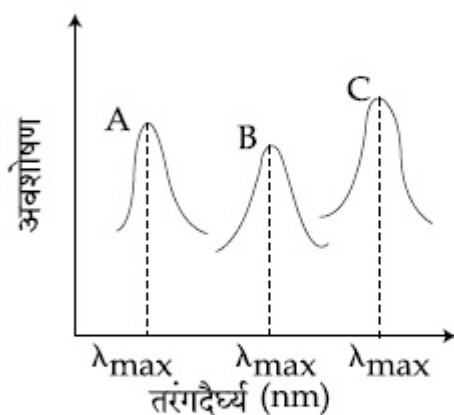
40503639122. A-(ii), B-(iii), C-(i)

40503639123. A-(iii), B-(i), C-(ii)

Question Number : 37 Question Id : 40503610742 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

M^{n+} आयन के तीन संकुलों ((i), (ii) तथा (iii)) के सरलीकृत अवशोषण स्पेक्ट्रा नीचे दिये गये हैं। उनके $\lambda_{\max}$ के मानों को A, B तथा C से क्रमशः चिन्हित किया गया है।



संकुलों तथा उनके $\lambda_{\max}$ मानों के बीच सही सुमेल है :

Options :

40503639120. A-(i), B-(ii), C-(iii)

40503639121. A-(ii), B-(i), C-(iii)

40503639122. A-(ii), B-(iii), C-(i)

40503639123. A-(iii), B-(i), C-(ii)

Question Number : 38 Question Id : 40503610743 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 one that is not expected to show isomerism is :

Options :

40503639124. $[\text{Ni}(\text{NH}_3)_2\text{Cl}_2]$

40503639125. $[\text{Ni}(\text{NH}_3)_4(\text{H}_2\text{O})_2]^{2+}$

40503639126. $[\text{Ni}(\text{en})_3]^{2+}$

40503639127. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$

Question Number : 38 Question Id : 40503610743 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 एक जिसकी समावयवता प्रदर्शित करने की संभावना नहीं है, है :

Options :

40503639124. $[\text{Ni}(\text{NH}_3)_2\text{Cl}_2]$

40503639125. $[\text{Ni}(\text{NH}_3)_4(\text{H}_2\text{O})_2]^{2+}$

40503639126. $[\text{Ni}(\text{en})_3]^{2+}$

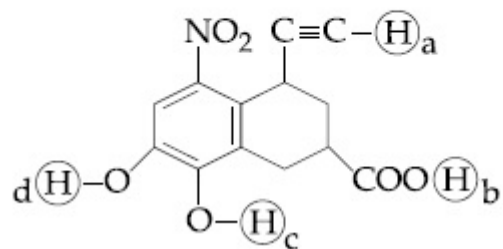
40503639127. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$

Question Number : 39 Question Id : 40503610744 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

Arrange the following labelled hydrogens in decreasing order of acidity :



Options :

40503639128. $b > c > d > a$

40503639129. $c > b > d > a$

40503639130. $b > a > c > d$

40503639131. $c > b > a > d$

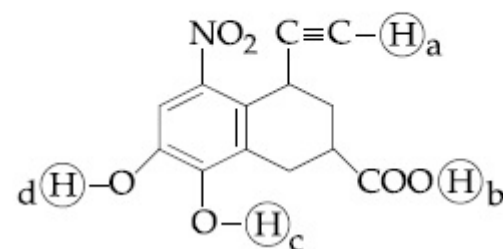
Question Number : 39 Question Id : 40503610744 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित लेबलित हाइड्रोजनों को अम्लीयता के घटते क्रम में क्रमबद्ध कीजिए :



Options :

40503639128. $b > c > d > a$

40503639129. $c > b > d > a$

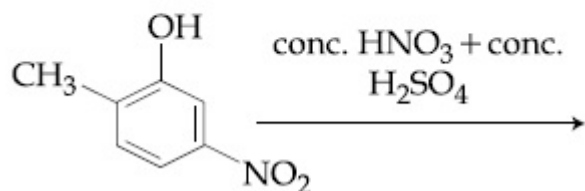
40503639130. $b > a > c > d$

40503639131. $c > b > a > d$

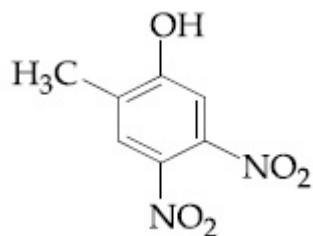
Question Number : 40 Question Id : 40503610745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

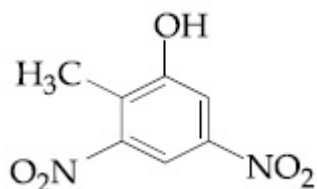
The major product of the following reaction is :



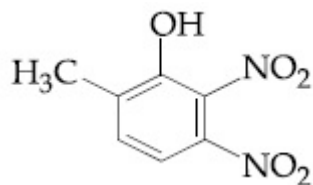
Options :



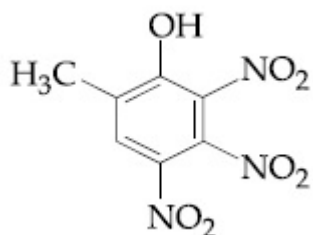
40503639132.



40503639133.



40503639134.

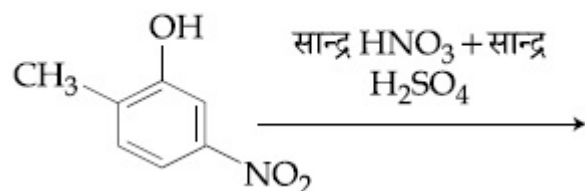


40503639135.

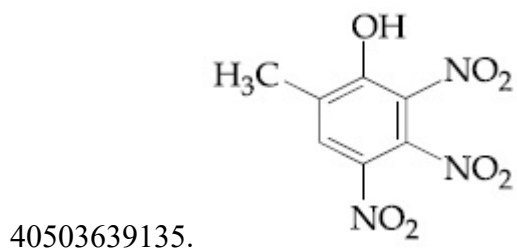
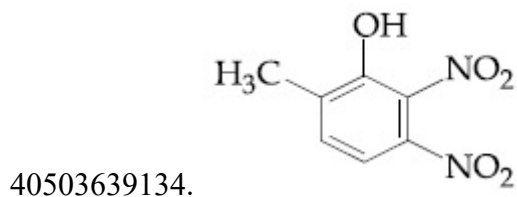
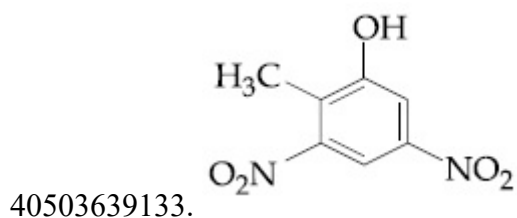
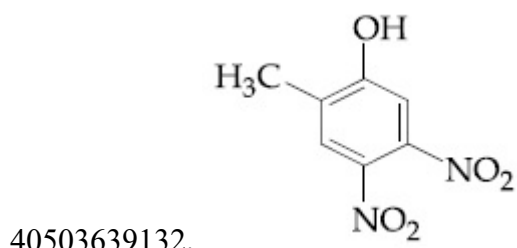
Question Number : 40 Question Id : 40503610745 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
 Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया का मुख्य उत्पाद है :



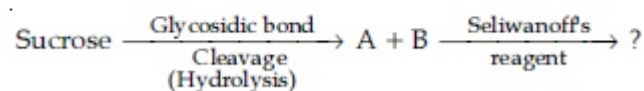
Options :



Question Number : 41 Question Id : 40503610746 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 correct observation in the following reactions is :



Options :

40503639136. Formation of red colour

40503639137. Formation of blue colour

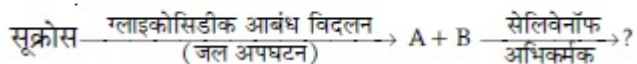
40503639138. Formation of violet colour

40503639139. Gives no colour

Question Number : 41 Question Id : 40503610746 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 में सही प्रेक्षण है :



Options :

40503639136. लाल रंग का बनना

40503639137. नीले रंग का बनना

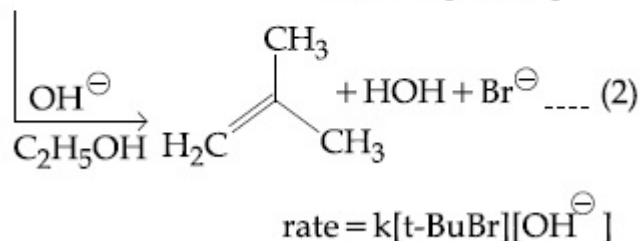
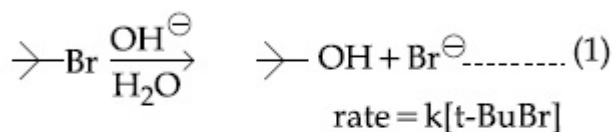
40503639138. बैंगनी रंग का बनना

40503639139. कोई रंग नहीं देता है

Question Number : 42 Question Id : 40503610747 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 reaction sequence given below :



Which of the following statements is true :

Options :

40503639140. Doubling the concentration of base will double the rate of both the reactions.

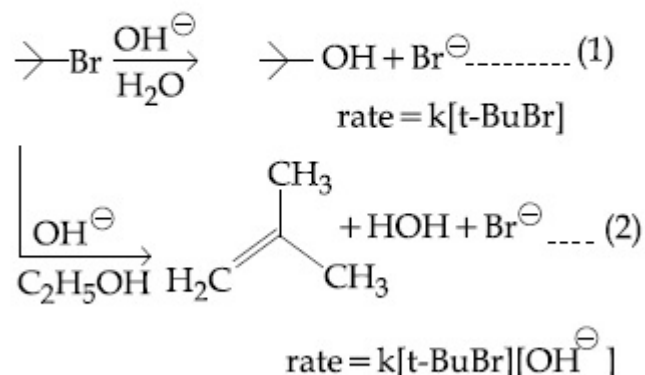
40503639141. Changing the concentration of base will have no effect on reaction (2).

40503639142. Changing the concentration of base will have no effect on reaction (1).

40503639143. Changing the base from $\text{OH}^\ominus$ to $^\ominus\text{OR}$ will have no effect on reaction (2).

Question Number : 42 Question Id : 40503610747 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

नीचे दिये गये अभिक्रिया अनुक्रम पर विचार कीजिए :



निम्नलिखित में से कौन सा कथन सही है?

Options :

40503639140. क्षार की सान्द्रता को दुगुना करने पर दोनों अभिक्रियाओं की दर दुगुनी हो जायेगी।

40503639141. क्षार की सान्द्रता को बदलने पर अभिक्रिया (2) पर कोई प्रभाव नहीं पड़ेगा।

40503639142. क्षार की सान्द्रता को बदलने पर अभिक्रिया (1) पर कोई प्रभाव नहीं पड़ेगा।

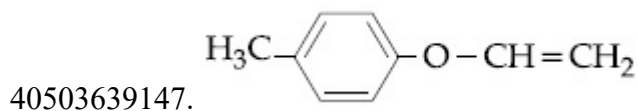
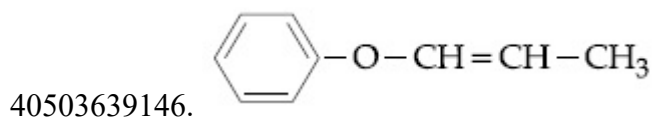
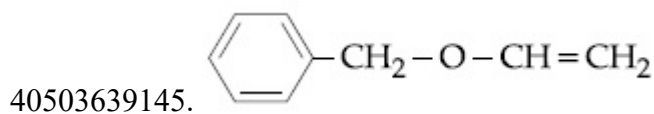
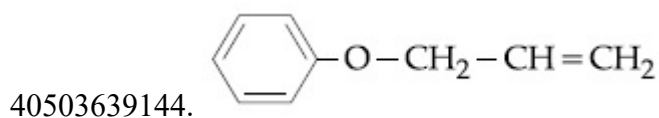
40503639143. क्षार को $\text{OH}^\ominus$ से $^\ominus\text{OR}$ में बदलने पर अभिक्रिया (2) पर कोई प्रभाव नहीं पड़ेगा।

Question Number : 43 Question Id : 40503610748 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' ($\text{C}_9\text{H}_{10}\text{O}$) when treated with conc. HI undergoes cleavage to yield compounds 'B' and 'C'. 'B' gives yellow precipitate with AgNO_3 where as 'C' tautomerizes to 'D'. 'D' gives positive iodoform test. 'A' could be :

Options :

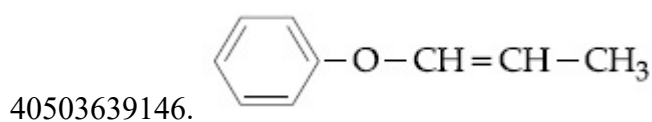
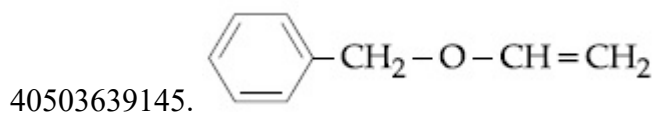
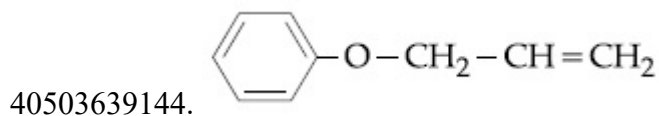


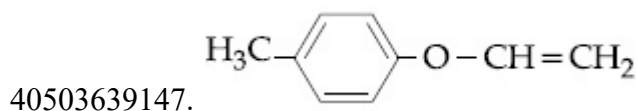
Question Number : 43 Question Id : 40503610748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक कार्बनिक यौगिक 'A' ($C_9H_{10}O$) को जब सान्द्र HI के साथ अभिक्रियित कराया जाता है, तो इसका विदलन होता है तथा यौगिक 'B' तथा 'C' प्राप्त होते हैं। 'B' $AgNO_3$ के साथ पीले रंग का अवक्षेप देता है जबकि 'C', 'D' में चलावयवित होता है। 'D' सकारात्मक आयोडोफार्म परीक्षण देता है। 'A' हो सकता है :

Options :



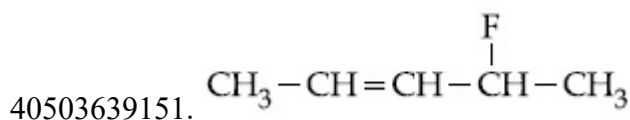
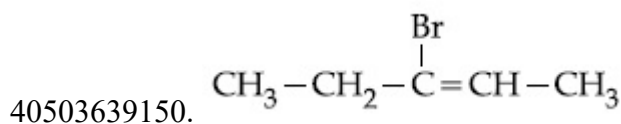
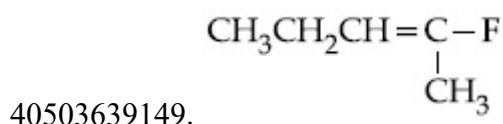
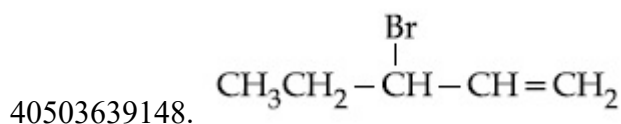


Question Number : 44 Question Id : 40503610749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The major product obtained from E_2 -elimination of 3-bromo-2-fluoropentane is :

Options :

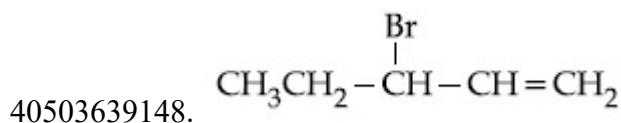


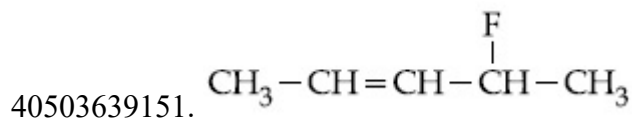
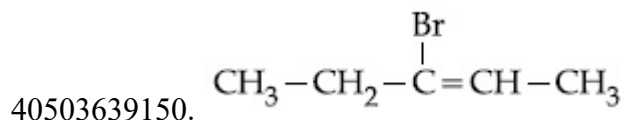
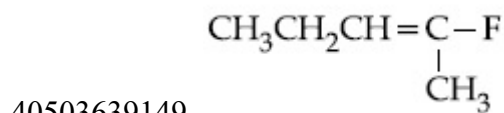
Question Number : 44 Question Id : 40503610749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

3-ब्रोमो-2-फ्लोरोपेन्टेन के E_2 -विलोपन से प्राप्त मुख्य उत्पाद है :

Options :





Question Number : 45 Question Id : 40503610750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

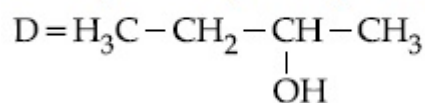
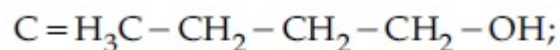
Correct Marks : 4 Wrong Marks : 1

Two compounds A and B with same molecular formula ($\text{C}_3\text{H}_6\text{O}$) undergo Grignard's reaction with methylmagnesium bromide to give products C and D. Products C and D show following chemical tests.

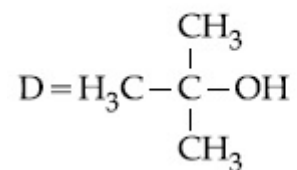
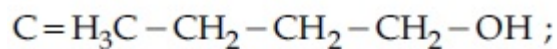
Test	C	D
Ceric ammonium nitrate Test	Positive	Positive
Lucas Test	Turbidity obtained after five minutes	Turbidity obtained immediately
Iodoform Test	Positive	Negative

C and D respectively are :

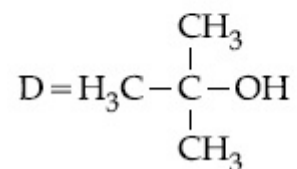
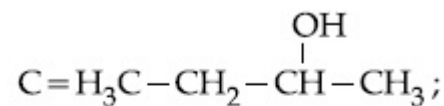
Options :



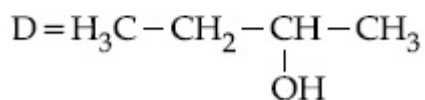
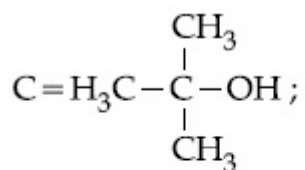
40503639152.



40503639153.



40503639154.



40503639155.

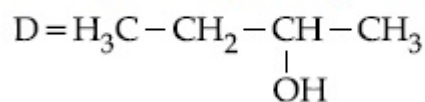
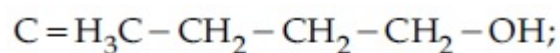
**Question Number : 45 Question Id : 40503610750 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
 Orientation : Vertical
 Correct Marks : 4 Wrong Marks : 1**

दो यौगिक A तथा B जिनका आण्विक सूत्र (C_3H_6O) समान हैं, मेथिलमैग्नीशियम ब्रोमाइड के साथ ग्रिग्नार्ड अभिक्रिया करके उत्पाद C तथा D देते हैं। उत्पाद C तथा D निम्नलिखित रासायनिक परीक्षण देते हैं :

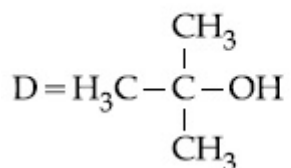
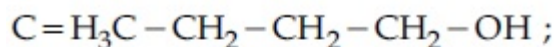
परीक्षण	C	D
सेरिक अमोनियम नाइट्रेट परीक्षण	सकारात्मक	सकारात्मक
लूकास परीक्षण	5 मिनट के बाद आविलता की प्राप्ति	तुरंत आविलता की प्राप्ति
आयोडोफार्म परीक्षण	सकारात्मक	नकारात्मक

C तथा D क्रमशः हैं :

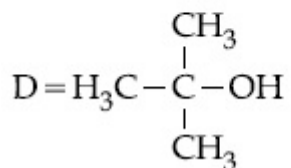
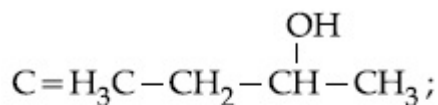
Options :



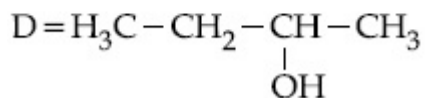
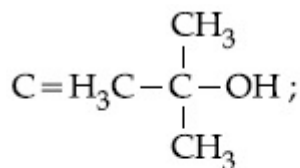
40503639152.



40503639153.



40503639154.



40503639155.

Sub-Section Number :

2

Sub-Section Id :

405036746

Question Shuffling Allowed :

Yes

Question Number : 46 Question Id : 40503610751 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

The work function of sodium metal is 4.41×10^{-19} J. If photons of wavelength 300 nm are incident on the metal, the kinetic energy of the ejected electrons will be ($h = 6.63 \times 10^{-34}$ J s; $c = 3 \times 10^8$ m/s) _____ $\times 10^{-21}$ J.

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 : 40503610751 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

सोडियम धातु का कार्यफलन 4.41×10^{-19} J है।
यदि धातु पर तरंगदैर्घ्य 300 nm के फोटॉन आपतित होते हैं, तो उत्क्षेपित इलेक्ट्रॉनों की गतिज ऊर्जा _____ $\times 10^{-21}$ J होगी।
($h = 6.63 \times 10^{-34}$ J s; $c = 3 \times 10^8$ m/s)

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 : 40503610752 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

The heat of combustion of ethanol into carbon dioxids and water is -327 kcal at constant pressure. The heat evolved (in cal) at constant volume and 27°C (if all gases behave ideally) is ($R = 2 \text{ cal mol}^{-1} \text{ K}^{-1}$) _____.

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 : 40503610752 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

स्थिर दाब पर एथेनॉल का कार्बन डाइआक्साइड तथा जल में दहन की ऊष्मा -327 kcal है। स्थिर आयतन तथा 27°C पर (यदि सभी गैसों का स्वभाव आदर्श है) उत्सर्जित ऊष्मा (cal में) है ($R = 2 \text{ cal mol}^{-1} \text{ K}^{-1}$) _____।

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 : 40503610753 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

For the disproportionation reaction
 $2 \text{Cu}^+(\text{aq}) \rightleftharpoons \text{Cu}(\text{s}) + \text{Cu}^{2+}(\text{aq})$ at 298 K,
 $\ln K$ (where K is the equilibrium constant)
 is _____ $\times 10^{-1}$.

Given :

$$E_{\text{Cu}^{2+}/\text{Cu}^+}^0 = 0.16 \text{ V}$$

$$E_{\text{Cu}^+/\text{Cu}}^0 = 0.52 \text{ V}$$

$$\frac{RT}{F} = 0.025$$

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 :** 40503610753 **Question Type :** SA Display **Question Number :** Yes

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

298 K पर असमानुपातन अभिक्रिया $2 \text{Cu}^+(\text{aq}) \rightleftharpoons \text{Cu}(\text{s}) + \text{Cu}^{2+}(\text{aq})$ के लिए $\ln K$ है (जहाँ K साम्यस्थिरांक है) _____ $\times 10^{-1}$ ।

दिया गया है :

$$E_{\text{Cu}^{2+}/\text{Cu}^+}^0 = 0.16 \text{ V}$$

$$E_{\text{Cu}^+/\text{Cu}}^0 = 0.52 \text{ V}$$

$$\frac{RT}{F} = 0.025$$

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 :** 40503610754 **Question Type :** SA Display **Question Number :** Yes

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

The oxidation states of transition metal atoms in $\text{K}_2\text{Cr}_2\text{O}_7$, KMnO_4 and K_2FeO_4 , respectively, are x , y and z . The sum of x , y and z 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 : 40503610754 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

$\text{K}_2\text{Cr}_2\text{O}_7$, KMnO_4 तथा K_2FeO_4 में संक्रमण धातु परमाणुओं की ऑक्सीकरण अवस्थाएँ क्रमशः x , y तथा z हैं। x , y तथा z का योग 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 : 40503610755 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

The ratio of the mass percentages of 'C & H' and 'C & O' of a saturated acyclic organic compound 'X' are 4 : 1 and 3 : 4 respectively. Then, the moles of oxygen gas required for complete combustion of two moles of organic compound 'X' 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 : 40503610755 Question Type : SA Display Question Number : Yes

Correct Marks : 4 Wrong Marks : 0

एक संतृप्त अचक्रीय कार्बनिक यौगिक 'X' के 'C & H' तथा 'C & O' की संहति प्रतिशतताओं का अनुपात क्रमशः 4 : 1 तथा 3 : 4 हैं। तो कार्बनिक यौगिक 'X' के दो मोल के सम्पूर्ण दहन के लिए ऑक्सीजन गैस के आवश्यक मोल हैं _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

5 to 5.002