Section Marks: 100

Sub-Section Number: 1
Sub-Section Id: 405036106
Question Shuffling Allowed : Yes

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

For the following Assertion and Reason, the correct option is :

Assertion : For hydrogenation reactions, the catalytic activity increases from Group 5 to Group 11 metals with maximum activity shown by Group 7 - 9 elements.

Reason : The reactants are most strongly adsorbed on group 7 - 9 elements.

Options :

1. Both assertion and reason are true and the reason is the correct explanation for the assertion.

2. Both assertion and reason are true but the reason is not the correct explanation for the assertion.

3. The assertion is true, but the reason is false.

4. Both assertion and reason are false.

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

निम्न कथन तथा कारण के लिए **सही** विकल्प है :

कथन : हाइड्रोजनीकरण अभिक्रिया के लिए, उत्प्रेरित क्रियाशीलता समूह 5 से समूह 11 तक बढ़ती है जिसमें समूह 7 - 9 के तत्वों में सबसे अधिक क्रियाशीलता होती है।

कारण : समूह 7 - 9 के तत्वों पर अभिकारकों का अधिशोषण सर्वाधिक प्रबलता से होता है।

Options :

1. कथन तथा कारण दोनों सही हैं तथा कारण कथन की सही व्याख्या है।

2. कथन तथा कारण दोनों सही हैं परन्तु कारण कथन की सही व्याख्या नहीं है।

3. कथन सही है, परन्तु कारण गलत है।

4. कथन तथा कारण दोनों गलत हैं।

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

નીચે આપેલા કથન અને કારણ માટે નીચે આપેલા પૈકી કયું એક સાચું છે?

કથન : હાઈડ્રોજીનેશન પ્રક્રિયા માટે, ઉદ્દીપકીય સક્રિયતા સમૂહ 5 થી સમૂહ 11 ની ધાતુઓમા વધે છે અને સૌથી વધુ સક્રિયતા 7 - 9 ના તત્વોમા જોવા મળે છે.

કારણ : સમૂહ 7 - 9 ના તત્વો ઉપર પ્રક્રિયકોનું સૌથી પ્રબળ અધિશોષણ થાય છે.

Options :

કથન અને કારણ બંને સાચા છે અને કારણ એ
1. કથન માટેની સાચી સમજુતી છે.

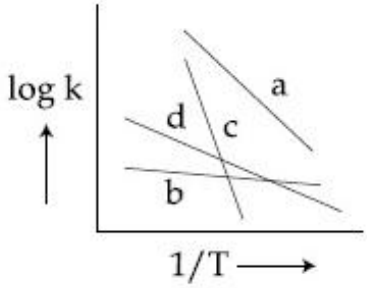
કથન અને કારણ બંને સાચા છે પરંતુ કારણ એ
2. કથન માટેની સાચી સમજુતી નથી.

3. કથન સાચું છે પરંતુ કારણ ખોટું છે.

4. કથન અને કારણ બંને ખોટાં છે.

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

Consider the following plots of rate constant versus $\frac{1}{T}$ for four different reactions. Which of the following orders is correct for the activation energies of these reactions ?



Options :

1. $E_b > E_d > E_c > E_a$

2. $E_a > E_c > E_d > E_b$

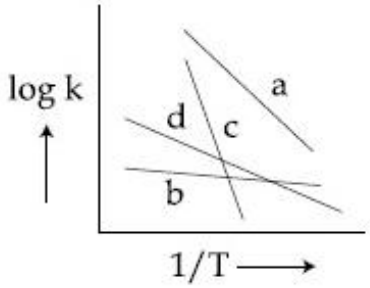
3. $E_c > E_a > E_d > E_b$

4. $E_b > E_a > E_d > E_c$

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

चार विभिन्न अभिक्रियाओं के लिए वेग-स्थिरांक का $\frac{1}{T}$ के विरुद्ध निम्नलिखित आलेखों पर विचार कीजिए।

इन अभिक्रियाओं के सक्रियण ऊर्जाओं के लिए निम्नलिखित क्रमों में से कौन सा **सही** है?



Options :

1. $E_b > E_d > E_c > E_a$

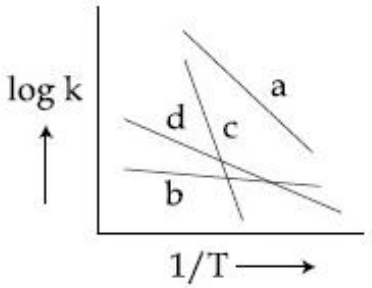
2. $E_a > E_c > E_d > E_b$

3. $E_c > E_a > E_d > E_b$

4. $E_b > E_a > E_d > E_c$

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

ચાર ભિન્ન પ્રક્રિયાઓ માટે, દર અચળાંક વિરુધ્ધ $\frac{1}{T}$ નો આલેખ ધ્યાનમાં લો. આ પ્રક્રિયાઓની સક્રિયકરણ શક્તિઓનો સાચો ક્રમ નીચેના માંથી ક્યો?



Options :

1. $E_b > E_d > E_c > E_a$

2. $E_a > E_c > E_d > E_b$

3. $E_c > E_a > E_d > E_b$

4. $E_b > E_a > E_d > E_c$

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

For the following Assertion and Reason, the correct option is :

Assertion : The pH of water increases with increase in temperature.

Reason : The dissociation of water into H^+ and OH^- is an exothermic reaction.

Options :

1. Both assertion and reason are true, and the reason is the correct explanation for the assertion.

2. Both assertion and reason are true, but the reason is not the correct explanation for the assertion.

3. Assertion is not true, but reason is true.

4. Both assertion and reason are false.

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

निम्नलिखित **कथन** तथा **कारण** के लिए **सही** विकल्प है :

कथन : जल का pH ताप के बढ़ने से बढ़ता है।

कारण : जल का H^+ तथा OH^- में वियोजन एक ऊष्मा-क्षेपी अभिक्रिया है।

Options :

1. कथन तथा कारण दोनों सही हैं, तथा कारण कथन की सही व्याख्या है।

2. कथन तथा कारण दोनों सही हैं, परन्तु कारण कथन की सही व्याख्या नहीं है।

3. कथन गलत है, परन्तु कारण सही है।

4. कथन तथा कारण दोनों गलत हैं।

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

નીચે કથન અને કારણ આપેલા છે. સાચો વિકલ્પ શોધો.

કથન : તાપમાન વધવાની સાથે પાણીની pH વધે છે.

કારણ : પાણીનું H^+ અને OH^- માં થતું વિયોજન એ એક ઉષ્માક્ષેપક પ્રક્રિયા છે.

Options :

1. કથન અને કારણ બંને સાચા છે અને કારણ એ કથનની સાચી સમજુતી છે.

2. કથન અને કારણ બંને સાચા છે પરંતુ કારણ એ કથનની સાચી સમજુતી છે.

3. કથન સાચુ નથી પરંતુ કારણ સાચું છે.

4. કથન અને કારણ બંને ખોટાં છે.

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

The radius of the second Bohr orbit, in terms of the Bohr radius, a_0, in Li^{2+} is :

Options :

1. $\frac{2a_0}{3}$

2. $\frac{4a_0}{3}$

3. $\frac{2a_0}{9}$

4. $\frac{4a_0}{9}$

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

Li^{2+} में द्वितीय बोर-कक्षक की त्रिज्या, बोर त्रिज्या, a_0 के रूप में, है :

Options :

1. $\frac{2a_0}{3}$

2. $\frac{4a_0}{3}$

3. $\frac{2a_0}{9}$

4. $\frac{4a_0}{9}$

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

બોહર ત્રિજ્યા a_0 ના સંદર્ભ માં, Li^{2+} બીજી બોહર કક્ષાની ત્રિજ્યા છે.

Options :

1. $\frac{2a_0}{3}$

2. $\frac{4a_0}{3}$

3. $\frac{2a_0}{9}$

4. $\frac{4a_0}{9}$

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

Arrange the following bonds according to their average bond energies in descending order :

C – Cl, C – Br, C – F, C – I

Options :

1. C – Cl > C – Br > C – I > C – F

2. C – F > C – Cl > C – Br > C – I

3. C – I > C – Br > C – Cl > C – F

4. C – Br > C – I > C – Cl > C – F

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

निम्नलिखित आबंधों को उनके औसत आबंध ऊर्जाओं के अनुसार घटते क्रम में क्रमबद्ध कीजिए :

C – Cl, C – Br, C – F, C – I

Options :

1. C – Cl > C – Br > C – I > C – F

2. C – F > C – Cl > C – Br > C – I

3. C – I > C – Br > C – Cl > C – F

4. C – Br > C – I > C – Cl > C – F

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

નીચે આપેલા બંધોને તેમની સરેરાશ બંધ ઉર્જાના ઉતરતા ક્રમમાં ગોઠવો :

C – Cl, C – Br, C – F, C – I

Options :

1. C – Cl > C – Br > C – I > C – F

2. C – F > C – Cl > C – Br > C – I

3. C – I > C – Br > C – Cl > C – F

4. C – Br > C – I > C – Cl > C – F

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

Which of the following compounds is likely to show both Frenkel and Schottky defects in its crystalline form ?

Options :

1. ZnS

2. CsCl

3. KBr

4. AgBr

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

निम्नलिखित यौगिकों में से कौन अपने क्रिस्टलीय रूप में फ्रेन्केल तथा शॉटकी दोनों दोषों को प्रदर्शित करता है?

Options :

1. ZnS

2. CsCl

3. KBr

4. AgBr

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

સ્ફટીકીય રૂપમાં નીચેના સંયોજનોમાનો કયો ફ્રેન્કલ અને શોટ્કી એ બંને ત્રુટિઓ દર્શાવે છે?

Options :

1. ZnS

2. CsCl

3. KBr

4. AgBr

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

The increasing order of the atomic radii of the following elements is :

(a) C (b) O (c) F

(d) Cl (e) Br

Options :

1. (a) < (b) < (c) < (d) < (e)

2. (b) < (c) < (d) < (a) < (e)

3. (c) < (b) < (a) < (d) < (e)

4. (d) < (c) < (b) < (a) < (e)

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

निम्नलिखित तत्वों की परमाणु त्रिज्याओं का बढ़ता क्रम है :

(a) C (b) O (c) F

(d) Cl (e) Br

Options :

1. (a) < (b) < (c) < (d) < (e)

2. (b) < (c) < (d) < (a) < (e)

3. (c) < (b) < (a) < (d) < (e)

4. (d) < (c) < (b) < (a) < (e)

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

નીચે આપેલા તત્વોની પરમાણીય ત્રિજ્યાનો ચઢતો ક્રમ છે :

(a) C (b) O (c) F

(d) Cl (e) Br

Options :

1. (a) < (b) < (c) < (d) < (e)

2. (b) < (c) < (d) < (a) < (e)

3. (c) < (b) < (a) < (d) < (e)

4. (d) < (c) < (b) < (a) < (e)

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

Among the reactions (a) - (d), the reaction(s) that does/do not occur in the blast furnace during the extraction of iron is/are :

(a) $CaO + SiO_2 \rightarrow CaSiO_3$

(b) $3Fe_2O_3 + CO \rightarrow 2Fe_3O_4 + CO_2$

(c) $FeO + SiO_2 \rightarrow FeSiO_3$

(d) $FeO \rightarrow Fe + \frac{1}{2}O_2$

Options :

1. (a)

2. (d)

3. (c) and (d)

4. (a) and (d)

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

अभिक्रियाओं (a) - (d), में से वात्याभट्टी में आयरन के निष्कर्षण के दौरान नहीं घटित होने वाली अभिक्रिया/ अभिक्रियायें है/हैं :

(a) $CaO + SiO_2 \rightarrow CaSiO_3$

(b) $3Fe_2O_3 + CO \rightarrow 2Fe_3O_4 + CO_2$

(c) $FeO + SiO_2 \rightarrow FeSiO_3$

(d) $FeO \rightarrow Fe + \frac{1}{2}O_2$

Options :

1. (a)

2. (d)

3. (c) तथा (d)

4. (a) तथा (d)

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

આપેલી પ્રક્રિયાઓ (a) - (d) પૈકી, પ્રક્રિયા (ઓ) કે જે આયર્નના નિષ્કર્ષણ દરિમ્યાન વાત ભટ્ટીમાં થાય છે/થતી નથી તે/તેઓ :

(a) $CaO + SiO_2 \rightarrow CaSiO_3$

(b) $3Fe_2O_3 + CO \rightarrow 2Fe_3O_4 + CO_2$

(c) $FeO + SiO_2 \rightarrow FeSiO_3$

(d) $FeO \rightarrow Fe + \frac{1}{2}O_2$

Options :

1. (a)

2. (d)

3. (c) અને (d)

4. (a) અને (d)

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

Hydrogen has three isotopes (A), (B) and (C). If the number of neutron(s) in (A), (B) and (C) respectively, are (x), (y) and (z), the sum of (x), (y) and (z) is :

Options :

1. 1

2. 2

3. 3

4. 4

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

हाइड्रोजन के तीन समस्थानिक (A), (B) तथा (C) हैं।
यदि (A), (B) तथा (C) के न्यूट्रानों की संख्या क्रमश:
(x), (y) तथा (z) हैं तो (x), (y) तथा (z) का योग है :

Options :

1. 1

2. 2

3. 3

4. 4

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

હાઇડ્રોજનના ત્રણ સમસ્થાનિકો (A), (B) અને (C) છે.
(A), (B) અને (C) માં ન્યુટ્રોન ની સંખ્યા અનુક્રમે
(x), (y) અને (z) હોય તો (x), (y) અને (z) નો સરવાળો
છે :

Options :

1. 1

2. 2

3. 3

4. 4

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

A metal (A) on heating in nitrogen gas gives compound B. B on treatment with H_2O gives a colourless gas which when passed through $CuSO_4$ solution gives a dark blue-violet coloured solution. A and B respectively, are :

Options :

1. Na and Na_3N

2. Mg and Mg_3N_2

3. Mg and $Mg(NO_3)_2$

4. Na and $NaNO_3$

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

एक धातु (A) नाइट्रोजन गैस में गरम करने पर यौगिक B देता है। B, H_2O के साथ उपचारित करने पर एक रंगहीन गैस देता है जिसको $CuSO_4$ के विलयन से प्रवाहित करने पर एक गहरे नीले–बैंगनी रंग का विलयन देता है। A तथा B क्रमशः हैं :

Options :

1. Na तथा Na_3N

2. Mg तथा Mg_3N_2

3. Mg तथा $Mg(NO_3)_2$

4. Na तथा $NaNO_3$

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

એક ધાતુ (A) ને નાઇટ્રોજન વાયુ સાથે ગરમ કરવા સંયોજન B મળે છે. B ની પાણી સાથે પ્રક્રિયા કરતા રંગવિહીન વાયુ મળે છે તેને $CuSO_4$ નાં દ્રાવણમાંથી પસાર કરતા ગાઢા ભૂરો-જાંબલી રંગનું દ્રાવણ મળે છે. A અને B અનુક્રમે છે :

Options :

1. Na અને Na_3N

2. Mg અને Mg_3N_2

3. Mg અને $Mg(NO_3)_2$

4. Na અને $NaNO_3$

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

White phosphorus on reaction with concentrated NaOH solution in an inert atmosphere of CO_2 gives phosphine and compound (X). (X) on acidification with HCl gives compound (Y). The basicity of compound (Y) is :

Options :

1. 1

2. 2

3. 3

4. 4

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

सफेद फास्फोरस सान्द्र NaOH विलयन के साथ CO_2 के एक निष्क्रिय वातावरण में अभिक्रिया करके फास्फीन तथा यौगिक (X) देता है। (X), HCl के साथ अम्लीकृत होकर यौगिक (Y) देता है। यौगिक (Y) की क्षारकता है :

Options :

1. 1

2. 2

3. 3

4. 4

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

સફેદ ફોસ્ફરસની સાંદ્ર NaOH દ્રાવણસાથે CO_2 ના નિષ્ક્રિય વાતાવરણમાં પ્રક્રિયા કરતા ફોસ્ફીન અને સંયોજન (X) મળે છે. (X) નું HCl સાથે એસીટીકરણ કરતાં સંયોજન (Y) મળે છે. સંયોજન (Y) ની બેઝિકતા છે :

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 37 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

The correct order of the calculated spin-only magnetic moments of complexes (A) to (D) is :

(A) $Ni(CO)_4$

(B) $[Ni(H_2O)_6]Cl_2$

(C) $Na_2[Ni(CN)_4]$

(D) $PdCl_2(PPh_3)_2$

Options :

1. (C) < (D) < (B) < (A)

2. (C) $\approx$ (D) < (B) < (A)

3. (A) $\approx$ (C) < (B) $\approx$ (D)

4. (A) $\approx$ (C) $\approx$ (D) < (B)

Question Number : 37 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

संकुलों (A) – (D) के प्रचक्रण–मात्र चुम्बकीय आघूर्णों का **सही** क्रम है :

(A) $Ni(CO)_4$

(B) $[Ni(H_2O)_6]Cl_2$

(C) $Na_2[Ni(CN)_4]$

(D) $PdCl_2(PPh_3)_2$

Options :

1. (C) < (D) < (B) < (A)

2. (C) ≈ (D) < (B) < (A)

3. (A) ≈ (C) < (B) ≈ (D)

4. (A) ≈ (C) ≈ (D) < (B)

Question Number : 37 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

સંકીર્ણો (A) – (D) ની ગણેલી ફક્ત સ્પીન ચુંબકીય ચાકમાત્રાનો સાચો ક્રમ છે :

(A) $Ni(CO)_4$

(B) $[Ni(H_2O)_6]Cl_2$

(C) $Na_2[Ni(CN)_4]$

(D) $PdCl_2(PPh_3)_2$

Options :

1. (C) < (D) < (B) < (A)

2. (C) ≈ (D) < (B) < (A)

3. (A) ≈ (C) < (B) ≈ (D)

4. (A) ≈ (C) ≈ (D) < (B)

Question Number : 38 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

Among (a) – (d), the complexes that can display geometrical isomerism are :

(a) $[Pt(NH_3)_3Cl]^+$

(b) $[Pt(NH_3)Cl_5]^-$

(c) $[Pt(NH_3)_2Cl(NO_2)]$

(d) $[Pt(NH_3)_4ClBr]^{2+}$

Options :

1. (a) and (b)

2. (b) and (c)

3. (c) and (d)

4. (d) and (a)

Question Number : 38 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

(a) – (d) में से, संकुल जो ज्यामितीय समावयवता प्रदर्शित कर सकते है, हैं :

(a) $[Pt(NH_3)_3Cl]^+$

(b) $[Pt(NH_3)Cl_5]^-$

(c) $[Pt(NH_3)_2Cl(NO_2)]$

(d) $[Pt(NH_3)_4ClBr]^{2+}$

Options :

1. (a) तथा (b)

2. (b) तथा (c)

3. (c) तथा (d)

4. (d) तथा (a)

Question Number : 38 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

(a) – (d) પૈકી, સંકીર્ણો જે ભૌમિતિક સમઘટક દર્શાવે છે તેઓ :

(a) $[Pt(NH_3)_3Cl]^+$

(b) $[Pt(NH_3)Cl_5]^-$

(c) $[Pt(NH_3)_2Cl(NO_2)]$

(d) $[Pt(NH_3)_4ClBr]^{2+}$

Options :

1. (a) અને (b)

2. (b) અને (c)

3. (c) અને (d)

4. (d) અને (a)

Question Number : 39 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

Two monomers in maltose are :

Options :

1. α-D-glucose and α-D-Fructose

2. α-D-glucose and α-D-glucose

3. α-D-glucose and α-D-galactose

4. α-D-glucose and β-D-glucose

Question Number : 39 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

माल्टोस में दो एकलक हैं :

Options :

1. α-D-ग्लूकोस तथा α-D-फ्रूक्टोस

2. α-D-ग्लूकोस तथा α-D-ग्लूकोस

3. α-D-ग्लूकोस तथा α-D-गैलेक्टोस

4. α-D-ग्लूकोस तथा β-D-ग्लूकोस

Question Number : 39 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

માલ્ટોઝના બે મોનોમર છે :

Options :

1. α-D-ગ્લુકોઝ અને α-D-ફ્રૂક્ટોઝ

2. α-D-ગ્લુકોઝ અને α-D-ગ્લુકોઝ

3. α-D-ગ્લુકોઝ અને α-D-ગેલેક્ટોઝ

4. α-D-ગ્લુકોઝ અને β-D-ગ્લુકોઝ

Question Number : 40 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

Kjeldahl's method cannot be used to estimate nitrogen for which of the following compounds ?

Options :

1. $NH_2-\overset{\overset{O}{\|}}{C}-NH_2$

2. $CH_3CH_2-C\equiv N$

3. $C_6H_5NO_2$

4. $C_6H_5NH_2$

Question Number : 40 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

निम्नलिखित यौगिकों में से किसके लिए नाइट्रोजन के आकलन के लिए केल्डाल विधि का उपयोग नहीं किया जा सकता है?

Options :

1. $NH_2-\overset{\overset{O}{\|}}{C}-NH_2$

2. $CH_3CH_2-C\equiv N$

3. $C_6H_5NO_2$

4. $C_6H_5NH_2$

Question Number : 40 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

જેલ્ડાહલની રીતથી નાઈટ્રોજનના પરિમાપનમાં નીચેના માંથી કયા સંયોજનો વાપરી ન શકાય?

Options :

1. $NH_2-\overset{\overset{O}{\|}}{C}-NH_2$

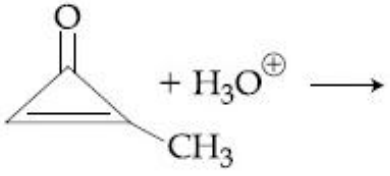
2. $CH_3CH_2-C\equiv N$

3. $C_6H_5NO_2$

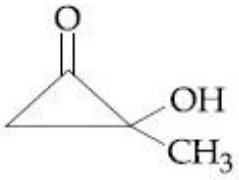
4. $C_6H_5NH_2$

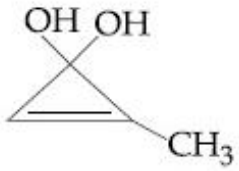
Question Number : 41 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

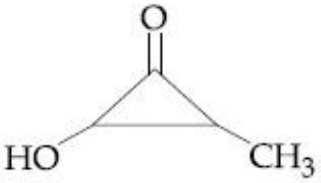
The major product in the following reaction is :

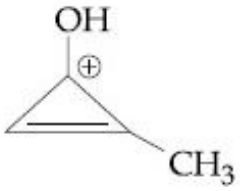


Options :

1. 

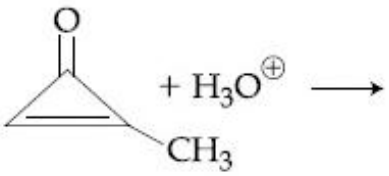
2. 

3. 

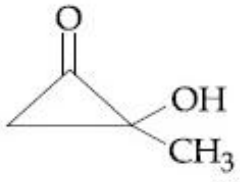
4. 

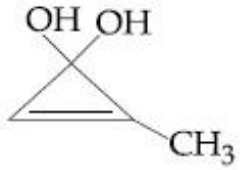
Question Number : 41 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

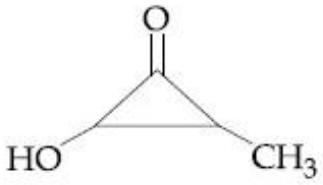
निम्नलिखित अभिक्रिया में मुख्य उत्पाद है :

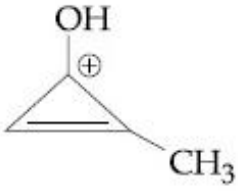


Options :

1. 

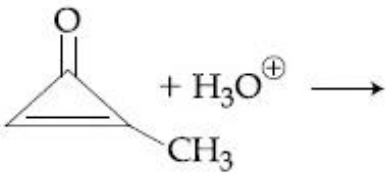
2. 

3. 

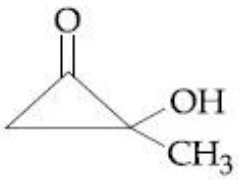
4. 

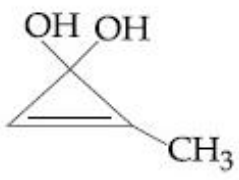
Question Number : 41 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

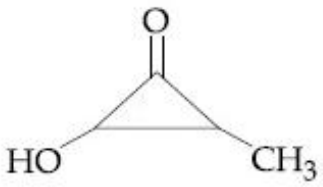
નીચેની પ્રક્રિયાની મુખ્ય નીપજ છે :

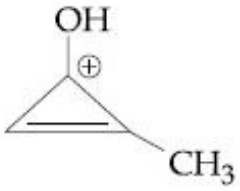


Options :

1. 

2. 

3. 

4. 

Question Number : 42 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

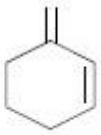
An unsaturated hydrocarbon X absorbs two hydrogen molecules on catalytic hydrogenation, and also gives following reaction :

$$X \xrightarrow[Zn/H_2O]{O_3} A \xrightarrow{[Ag(NH_3)_2]^+}$$

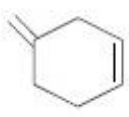
B(3-oxo-hexanedicarboxylic acid)

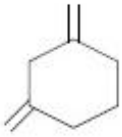
X will be :

Options :

1. 

2. 

3. 

4. 

Question Number : 42 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

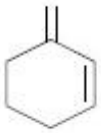
एक असंतृप्त हाइड्रोकार्बन X उत्प्रेरित हाइड्रोजनीकरण करने पर हाइड्रोजन के दो अणुओं को अवशोषित करता है तथा निम्नलिखित अभिक्रिया भी देता है :

$$X \xrightarrow[Zn/H_2O]{O_3} A \xrightarrow{[Ag(NH_3)_2]^+}$$

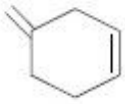
B(3-oxo-hexanedicarboxylic acid)

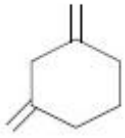
X होगा :

Options :

1. 

2. 

3. 

4. 

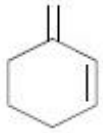
Question Number : 42 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

કેટાલિટીક હાઇડ્રોજીનેશનમાં એક સસંતૃપ્ત હાઈડ્રોકાર્બન X હાઈડ્રોજનના બે અણુઓનું શોષણ કરે છે અને નીચેની પ્રક્રિયાઓ પણ આપે છે :

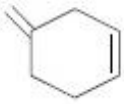
$$X \xrightarrow[Zn/H_2O]{O_3} A \xrightarrow{[Ag(NH_3)_2]^+} B \text{ (3-ઓક્સો-હેક્ઝેનડાયકાર્બોક્સીલીક એસિડ)}$$

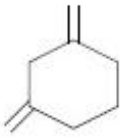
X હશે :

Options :

1. 

2. 

3. 

4. 

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

Preparation of Bakelite proceeds via reactions :

Options :

1. Electrophilic substitution and dehydration

2. Electrophilic addition and dehydration

3. Nucleophilic addition and dehydration

4. Condensation and elimination

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

बेकेलाइट का विरचन निम्नलिखित अभिक्रियाओं से होकर अग्रसरित होता है :

Options :

1. इलेक्ट्रॉनस्नेही प्रतिस्थापन तथा निर्जलन

2. इलेक्ट्रॉनस्नेही योगज तथा निर्जलन

3. नाभिकस्नेही योगज तथा निर्जलन

4. संघनन और निराकरण

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

બેકેલાઈટની બનાવટ કઈ પ્રક્રિયાથી થાય છે :

Options :

1. ઇલેક્ટ્રોન અનુરાગી વિસ્થાપન અને નિર્જળીકરણ

2. ઇલેક્ટ્રોન અનુરાગી યોગશીલ અને નિર્જળીકરણ

3. કેન્દ્ર અનુરાગી યોગશીલ અને નિર્જળીકરણ

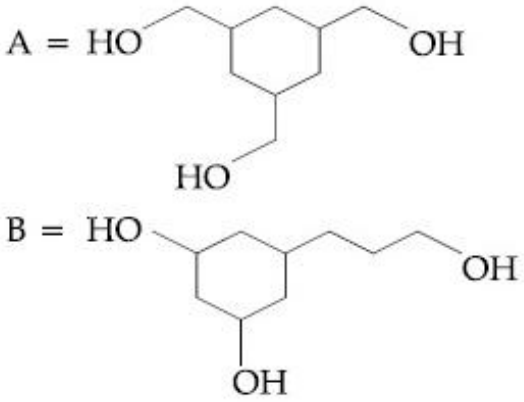
4. સંઘનન અને નિરસન

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

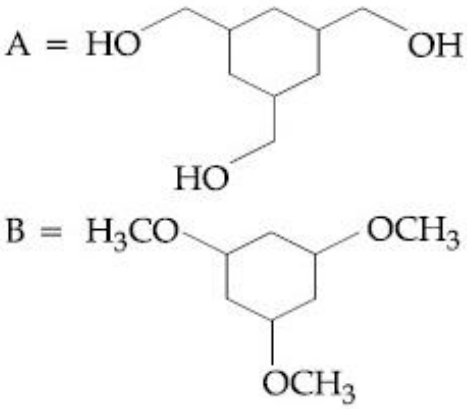
Among the compounds A and B with molecular formula $C_9H_{18}O_3$, A is having higher boiling point the B. The possible structures of A and B are :

Options :

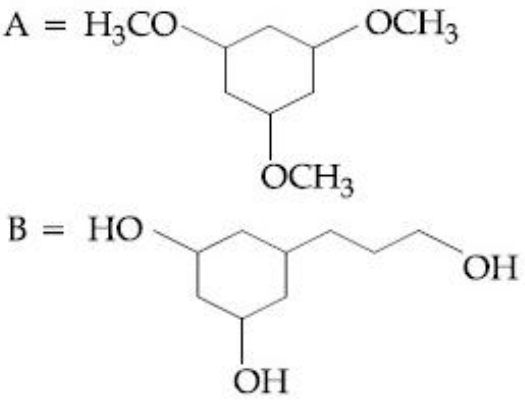
1.



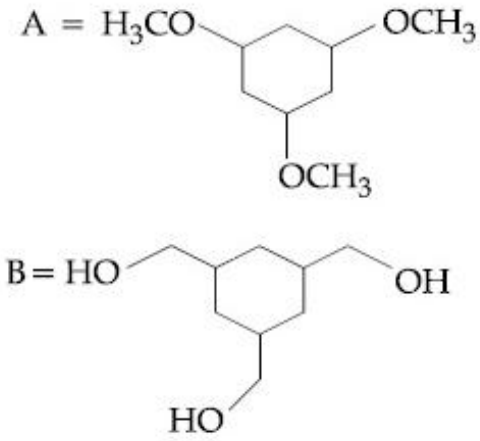
2.



3.



4.

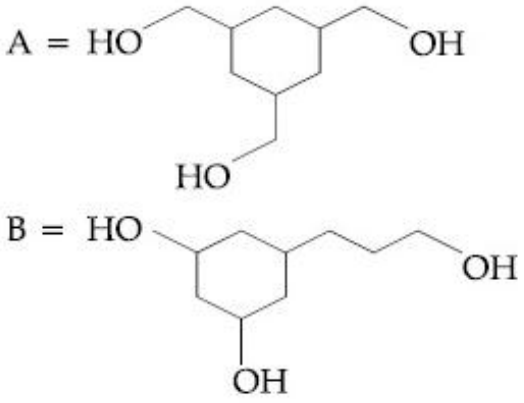


Question Number : 44 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

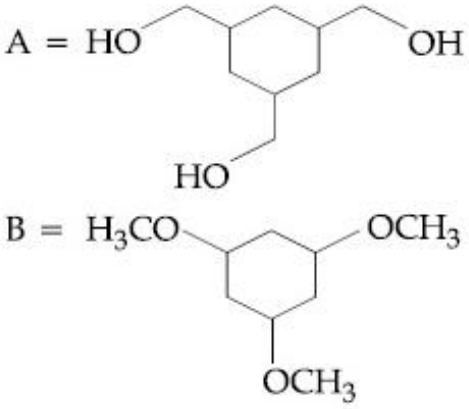
यौगिकों A तथा B, जिनका आण्विक सूत्र $C_9H_{18}O_3$ है, में से B की अपेक्षा A का क्वथनांक अधिक है। A तथा B की संभावित संरचनाएँ हैं :

Options :

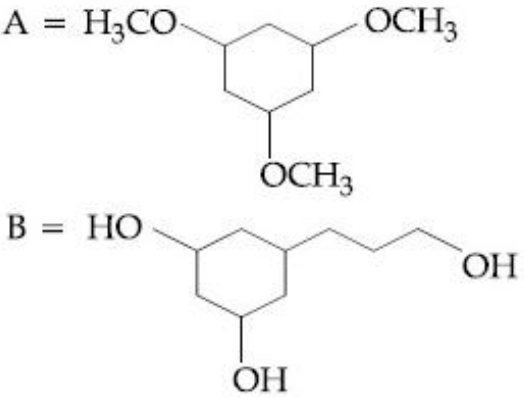
1.



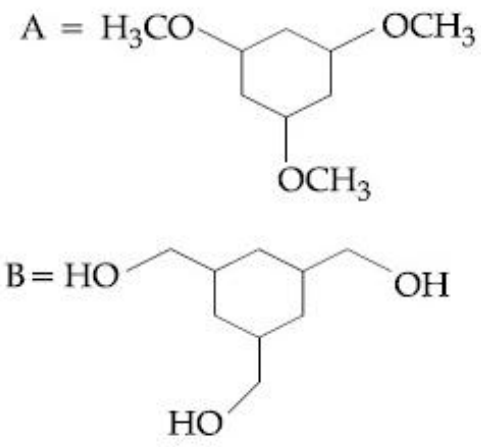
2.



3.



4.

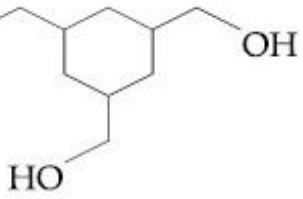


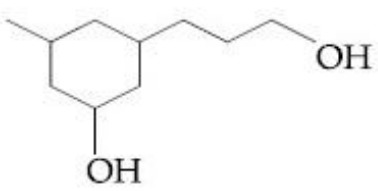
Question Number : 44 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

$C_9H_{18}O_3$ અણુસૂત્ર ધરાવતા સંયોજનો A અને B પૈકી, A નું ઉત્કલનબિંદુ B કરતા વધુ છે. A અને B ના શક્ય બંધારણો છે :

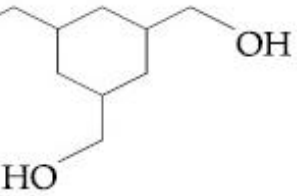
Options :

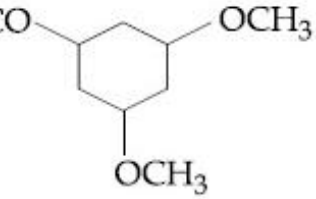
1.

A = 

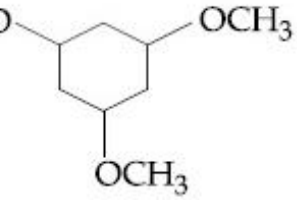
B = 

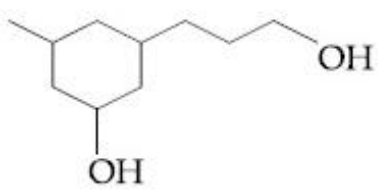
2.

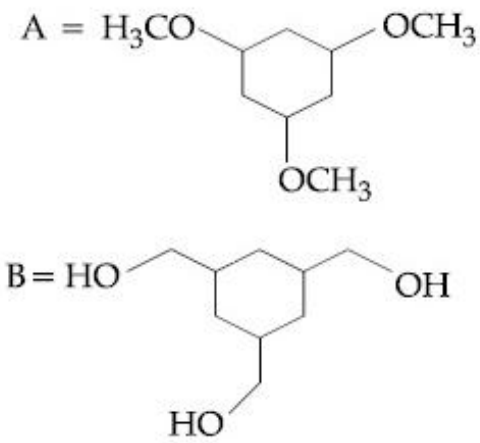
A = 

B = 

3.

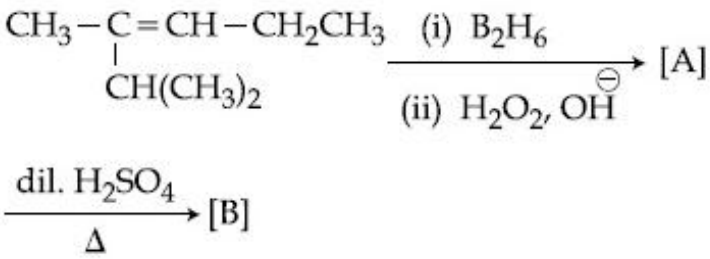
A = 

B = 

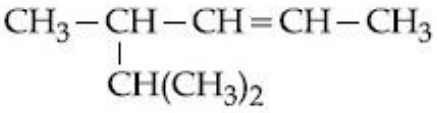
4. 

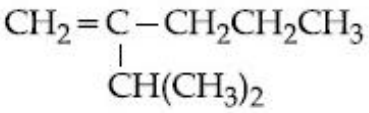
Question Number : 45 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

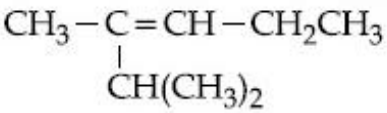
The major product [B] in the following sequence of reactions is :

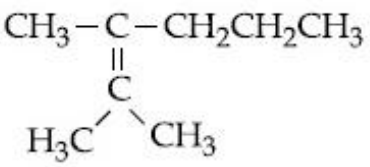


Options :

1. 

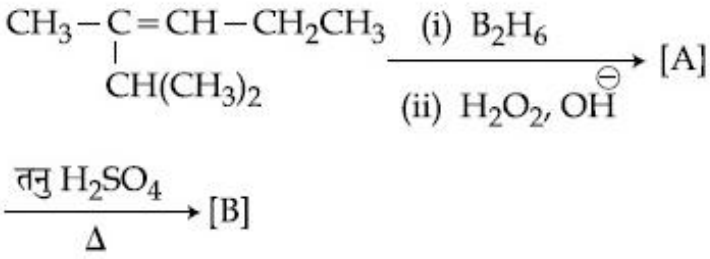
2. 

3. 

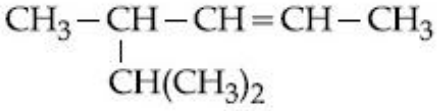
4. 

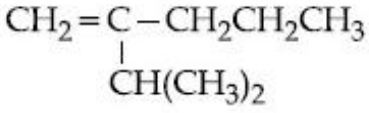
Question Number : 45 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

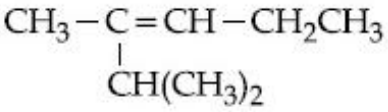
निम्नलिखित अभिक्रिया-अनुक्रम में मुख्य उत्पाद [B] है :

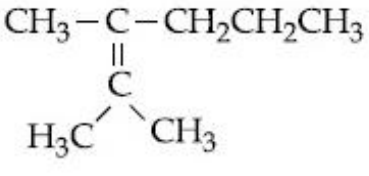


Options :

1. 

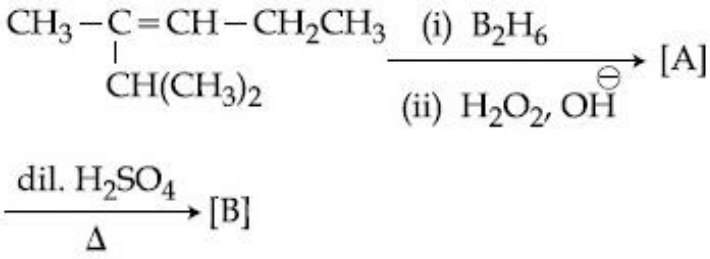
2. 

3. 

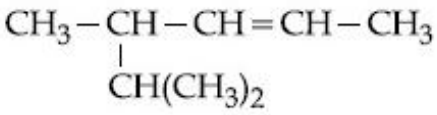
4. 

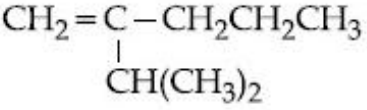
Question Number : 45 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1

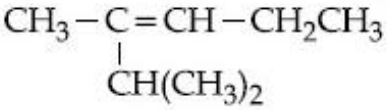
આપેલી પ્રક્રિયાઓની શ્રેણીમાં ની મુખ્ય નીપજ [B] શોધો :

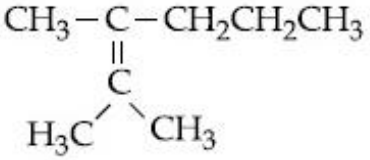


Options :

1. 

2. 

3. 

4. 

Sub-Section Number: 2
Sub-Section Id: 405036107
Question Shuffling Allowed : Yes

Question Number : 46 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

$NaClO_3$ is used, even in spacecrafts, to produce O_2. The daily consumption of pure O_2 by a person is 492 L at 1 atm, 300 K. How much amount of $NaClO_3$, in grams, is required to produce O_2 for the daily consumption of a person at 1 atm, 300 K?

_____.

$$NaClO_3(s) + Fe(s) \rightarrow O_2(g) + NaCl(s) + FeO(s)$$

$$R = 0.082 \text{ L atm mol}^{-1}\text{K}^{-1}$$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2120 to 2140

Question Number : 46 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

$NaClO_3$ का उपयोग O_2 के उत्पादन के लिए, अंतरिक्ष यानों में भी, किया जाता है। एक व्यक्ति द्वारा शुद्ध ऑक्सीजन की प्रतिदिन की खपत 492 L (1 atm, 300 K पर) है। 1 atm, 300 K पर व्यक्ति के प्रतिदिन की खपत के लिए ऑक्सीजन के उत्पादन के लिए आवश्यक $NaClO_3$ की मात्रा (g में) होगी _____.

$$NaClO_3(s) + Fe(s) \rightarrow O_2(g) + NaCl(s) + FeO(s)$$

$R = 0.082\ L\ atm\ mol^{-1}\ K^{-1}$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2120 to 2140

Question Number : 46 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

$NaClO_3$ નો અવકાશયાનમાં O_2 ઉત્પાદન કરવામાં વપરાય છે. 1 વાતા અને 300 K એ એક વ્યક્તિની શુદ્ધ ઓક્સીજનની દૈનિક ખપત 492 L છે. તે વ્યક્તિની દૈનિક ખપત માટે 1 વાતા અને 300 K એ જરૂરી O_2 માટે $NaClO_3$ ની માત્રા (g માં) _____.

$$NaClO_3(s) + Fe(s) \rightarrow O_2(g) + NaCl(s) + FeO(s)$$

$R = 0.082\ L\ atm\ mol^{-1}\ K^{-1}$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2120 to 2140

Question Number : 47 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

At constant volume, 4 mol of an ideal gas when heated from 300 K to 500 K changes its internal energy by 5000 J. The molar heat capacity at constant volume is _____.

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
6.25 to 6.25

Question Number : 47 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

स्थिर आयतन पर, एक आदर्श गैस के 4 mol को जब 300 K से 500 K तक गरम किया जाता है तो इसकी आंतरिक ऊर्जा में 5000 J का परिवर्तन होता है। स्थिर आयतन पर मोलर ऊष्मा धारिता है _____।

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
6.25 to 6.25

Question Number : 47 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

અચળ દબાણે, એક આદર્શવાયુના 4 મોલને 300 K થી 500 K ગરમ કરતાં તેની આંતરિક ઉર્જામા 5000 J નો ફેરફાર થાય છે. અચળ દબાણે મોલર ઉષ્મા ક્ષમતા છે _____.

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
6.25 to 6.25

Question Number : 48 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

For an electrochemical cell

$Sn(s)|Sn^{2+}(aq, 1M)||Pb^{2+}(aq, 1M)|Pb(s)$

the ratio $\frac{[Sn^{2+}]}{[Pb^{2+}]}$ when this cell attains equilibrium is _____.

$\left(\text{Given : } E^0_{Sn^{2+}|Sn} = -0.14V,\right.$

$\left. E^0_{Pb^{2+}|Pb} = -0.13V, \frac{2.303RT}{F} = 0.06\right)$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2.13 to 2.17

Question Number : 48 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

एक वैद्युतरासायनिक सेल

$Sn(s)|Sn^{2+}(aq, 1M)||Pb^{2+}(aq, 1M)|Pb(s)$

के लिए, जब सेल साम्यावस्था को प्राप्त करता है, तो

अनुपात $\frac{[Sn^{2+}]}{[Pb^{2+}]}$ है _____ ।

$\left(\text{दिया गया है} : E^0_{Sn^{2+}|Sn} = -0.14V,\right.$

$\left. E^0_{Pb^{2+}|Pb} = -0.13V, \frac{2.303RT}{F} = 0.06\right)$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2.13 to 2.17

Question Number : 48 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

એક ઈલેક્ટ્રોરાસાયણિક કોશ માટે,

$Sn(s)|Sn^{2+}(aq, 1M)||Pb^{2+}(aq, 1M)|Pb(s)$

જ્યારે કોશ સંતુલન અવસ્થા પ્રાપ્ત કરે છે ત્યારે $\frac{[Sn^{2+}]}{[Pb^{2+}]}$

નો ગુણોત્તર છે _____.

$\left(\text{આપેલ} : E^0_{Sn^{2+}|Sn} = -0.14V,\right.$

$\left. E^0_{Pb^{2+}|Pb} = -0.13V, \frac{2.303RT}{F} = 0.06\right)$

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
2.13 to 2.17

Question Number : 49 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Complexes (ML_5) of metals Ni and Fe have ideal square pyramidal and trigonal bipyramidal geometries, respectively. The sum of the 90°, 120° and 180° L–M–L angles in the two complexes is _____.

Response Type: Numeric

Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
20 to 20

Question Number : 49 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Ni तथा Fe धातुओं के संकुलों (ML_5) की ज्यामितियाँ क्रमश: आदर्श वर्ग पिरैमिडी तथा त्रिसमनताक्ष द्विपिरैमिडी हैं। दोनों संकुलों में 90°, 120° तथा 180° L–M–L कोणों का योग है _____।

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
20 to 20

Question Number : 49 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

ધાતુઓ Ni અને Fe ના સંકાર્ણો (ML_5) અનુક્રમે આદર્શ સમચોરસ પિરામિડ અને ત્રિકોણીય દ્વિપિરામિડ ભૂમિતિઓ ધરાવે છે. બે સંકીર્ણો ના 90°, 120° અને 180° L–M–L ખૂણાઓનો સરવાળો છે _____.

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
20 to 20

Question Number : 50 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

In the following sequence of reactions the maximum number of atoms present in molecule 'C' in one plane is _____.

$$A \xrightarrow[\text{Cu tube}]{\text{Red hot}} B \xrightarrow[\text{Anhydrous } AlCl_3]{CH_3Cl\ (1.\ eq.)} C$$

(A is a lowest molecular weight alkyne)

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
13 to 13

Question Number : 50 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

निम्नलिखित अभिक्रिया अनुक्रम में अणु 'C' में एक तल में, उपस्थित परमाणुओं की अधिकतम संख्या है _____ ।

$$A \xrightarrow[\text{Cu tube}]{\text{Red hot}} B \xrightarrow[\text{निर्जल } AlCl_3]{CH_3Cl\ (1.\ eq.)} C$$

(A एक अल्पतम अणुभार की एल्काइन है)

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
13 to 13

Question Number : 50 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

આપેલી પ્રક્રિયા શ્રેણીમાં, અણુ 'C' માં એક જ તલમાં હાજર પરમાણુઓની મહત્તમ સંખ્યા છે _____.

$$A \xrightarrow[\text{Cu નળી}]{\text{લાલ ચોળ}} B \xrightarrow[\text{નિર્જળીય } AlCl_3]{CH_3Cl\ (1.\ \text{તુલ્ય})} C$$

(A એક ન્યુનતમ અણુભાર ધરાવતો આલ્કાઈન)

Response Type: Numeric
Evaluation Required For SA: Yes
Show Word Count: Yes
Answers Type: Range
Possible Answers :
13 to 13

Mathematics

Section Id :	40503668
Section Number :	3
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	25
Number of Questions to be attempted:	25
Section Marks:	100

Sub-Section Number:	1
Sub-Section Id:	405036108
Question Shuffling Allowed :	Yes

Question Number : 51 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 4 Wrong Marks : 1