CHEMISTRY
12 Jan. 2019 [Session : 2 : 30 PM to 5 : 30 PM]
JEE MAIN PAPER ONLINE

1. The compound that is NOT a common common component of photochemical smog is :
प्रकाश रासायनिक धूमकुहा का जो सामान्य संघटक नही है, वह यौगिक है –

(1) O_3 (2) CF_2Cl_2 (3) $H_3C-\overset{\overset{O}{\|}}{C}-OONO_2$ (4) $CH_2=CHCHO$

A. 2

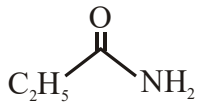
Sol. CF_2Cl_2 is not a common component of photochemical smog.

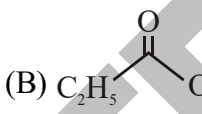
Question ID : 4165299915

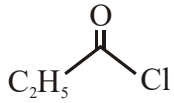
Option 1 ID : 41652939118 Option 2 ID : 41652939120

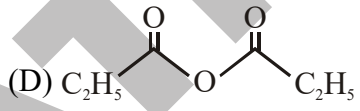
Option 3 ID : 41652939121 Option 4 ID : 41652939119

2. The increasing order of the reactivity of the following with $LiAlH_4$ is :
निम्नलिखित की $LiAlH_4$ के साथ अभिक्रियाशीलता का बढ़ता क्रम है –

(A) 

(B) 

(C) 

(D) 

(1) (A) < (B) < (C) < (D) (2) (B) < (A) < (D) < (C)

(3) (A) < (B) < (D) < (C) (4) (B) < (A) < (C) < (D)

A. 3

Sol. The reactivity order of carboxylic acid derivatives depends on the leaving tendency of the leaving group. Higher the leaving tendency of the leaving group, higher will be the reactivity of the compound. Therefore, reactivity order towards $LiAlH_4$ is.

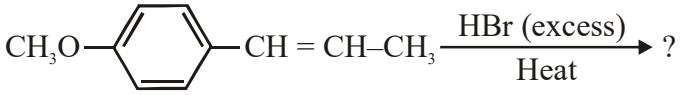
Acid halide > Acid anhydride > Ester > Amide

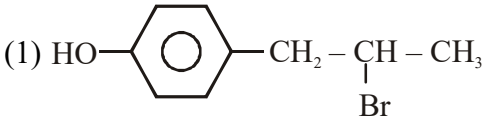
Question ID : 4165299902

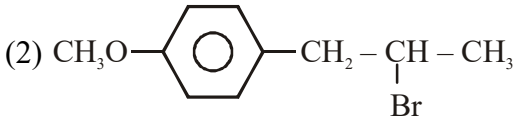
Option 1 ID : 41652939066 Option 2 ID : 41652939067

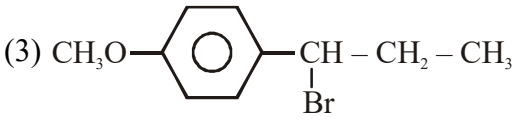
Option 3 ID : 41652939068 Option 4 ID : 41652939069

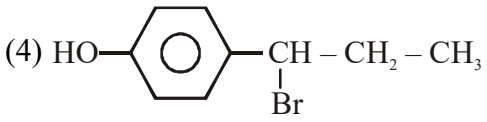
3. The major product in the following conversion is :
निम्नलिखित रूपान्तरण में सही उत्पाद है –



(1) 

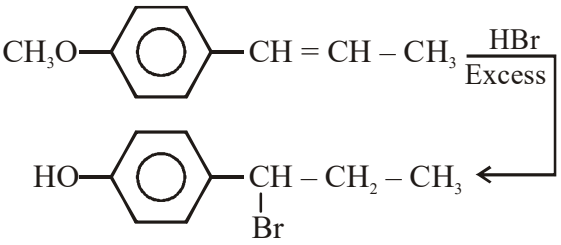
(2) 

(3) 

(4) 

A. 4

Sol.



Question ID : 4165299904

Option 1 ID : 41652939076 Option 2 ID : 41652939075

Option 3 ID : 41652939074 Option 4 ID : 41652939077

4. The two monomers for the synthesis of Nylon 6, 6 are :
नाइलॉन 6, 6 के संश्लेषण के लिए दो एकलक है –

(1) $HOOC(CH_2)_4COOH$, $H_2N(CH_2)_4NH_2$

(2) $HOOC(CH_2)_4COOH$, $H_2N(CH_2)_6NH_2$

(3) $HOOC(CH_2)_6COOH$, $H_2N(CH_2)_6NH_2$

(4) $HOOC(CH_2)_6COOH$, $H_2N(CH_2)_4NH_2$

A. 1

Sol. Monomer of Nylon-6, 6 are adipic acid and hexamethylene diammine.

Question ID : 4165299897

Option 1 ID : 41652939047 Option 2 ID : 41652939048

Option 3 ID : 41652939046 Option 4 ID : 41652939049

5. 8g of NaOH is dissolved in 18g of H_2O. Mole fraction of NaOH in solution and molality (in mol kg^{-1}) of the solution respectively are :
8g NaOH को 18g H_2O में घोला गया है। विलयन में NaOH का मोल अंश तथा विलयन की मोललता (मोल प्रति किलोग्राम) क्रमशः है –

(1) 0.2, 22.20 (2) 0.167, 22.20 (3) 0.167, 11.11 (4) 0.2, 11.11

A. 3

Sol. $\text{Mole faction} = \frac{n_2}{n_2+n_1} = \frac{\frac{1}{5}}{\frac{1}{5}+1} = 0.167$

$n_2 = \frac{8}{40}$ $n_1 = \frac{18}{18}$

$\text{Molality} = \frac{8}{40} \times \frac{1000}{18} = 11.11\text{m}$

Question ID : 4165299916

Option 1 ID : 41652939125 Option 2 ID : 41652939124

Option 3 ID : 41652939122 Option 4 ID : 41652939123

6. The element that does NOT show catenation is :
शृंखलन नहीं प्रदर्शित करने वाला तत्व है –

(1) Si (2) Ge (3) Sn (4) Pb

A. 4

Sol. Lead Pb

Question ID : 4165299910

Option 1 ID : 41652939098 Option 2 ID : 41652939099

Option 3 ID : 41652939100 Option 4 ID : 41652939101

7. An open vessel at 27°C is heated until two fifth of the air (assumed as an ideal gas) in it has escaped from the vessel. Assuming that the volume of the vessel remains constant, the temperatuer at which the vessel has been heated is :

27°C पर स्थित एक खुले पात्र को तब तक गर्म किया जाता है जब तक इसमें उपस्थित वायु (आदर्श गैस मानते हुए) के दो के पाँचवें भाग (2/5) पात्र से निकल नहीं जाता। यह मानकर कि पात्र का आयतन स्थिर है, ताप जिस पर पात्र को गर्म किया गया है, वह है –

(1) 750K (2) 500K (3) 500°C (4) 750°C

A. 2

Sol. Initial number of moles of an ideal gas = n_1

Find number of moles of the ideal gas

$$= n_2 = n_1 - \frac{2n_1}{5} = \frac{3n_1}{5}$$

At constant volume and pressure, the number of moles of an ideal gas is inversely proportional to temperature.

$$n \propto \frac{1}{T}$$

$$n_1T_1 = n_2T_2$$

$$T_2 = \frac{n_1}{n_2}T_1 = \frac{5}{3} \times 300 = 500K$$

Question ID : 4165299917

Option 1 ID : 41652939128 Option 2 ID : 41652939127

Option 3 ID : 41652939126 Option 4 ID : 41652939129

8. Given :

दिया गया है –

(i) $C(graphite) + O_2(g) \rightarrow CO_2(g)$;

$\Delta_rH^{\ominus} = x\ kJ\ mol^{-1}$

(ii) $C(graphite) + \frac{1}{2}O_2(g) \rightarrow CO(g)$;

$\Delta_rH^{\ominus} = y\ kJ\ mol^{-1}$

(iii) $CO(g) + \frac{1}{2}O_2(g) \rightarrow CO_2(g)$;

$\Delta_rH^{\ominus} = z\ kJ\ mol^{-1}$

Based on the above thermochemical equations, find out which one of the following algebraic relationships is correct?

उपर्युक्त ऊष्मारासायनिक समीकरणों के आधार पर बताइये कि नीचे दिए गये बीजगणितीय संबंधो में से कौन सा सही है ?

(1) x = y – z (2) y = 2z – x (3) z = x + y (4) x = y + z

A. 4

Sol. According to Hess's law, the enthalpy change of a reaction does not depend on the number of steps involved in the reaction.

$$C(\text{graphite}) + \frac{1}{2}O_2(g) \rightarrow CO(g)\ \Delta H_1^\circ = y\ \text{kJ mol}^{-1}$$

$$CO(g) + \frac{1}{2}O_2(g) \rightarrow CO_2(g)\ \Delta H_2^\circ = z\ \text{kJ mol}^{-1}$$

$$C(\text{graphite}) + O_2(g) \rightarrow \Delta^\circ H_3 = x\ \text{kJ mol}^{-1}$$

$\because \quad \Delta H_3^\circ = \Delta H_1^\circ + \Delta H_2^\circ$

$x = y + z$

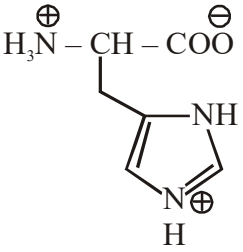
Question ID : 4165299920

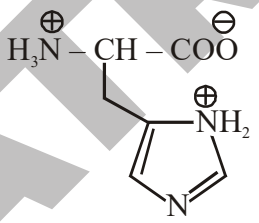
Option 1 ID : 41652939139 Option 2 ID : 41652939141

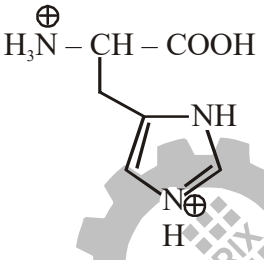
Option 3 ID : 41652939140 Option 4 ID : 41652939138

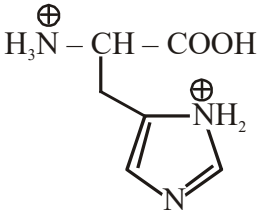
9. The correct structure of histidine in a strongly acidic solution (pH = 2) is :

एक सान्द्र अम्लीय विलयन (pH = 2) में, हिस्टीडीन की सही संरचना है –

(1) 

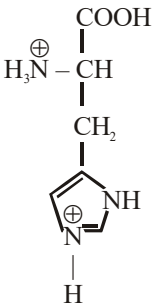
(2) 

(3) 

(4) 

A. 3

Sol. Histidine (in strongly acidic solution)



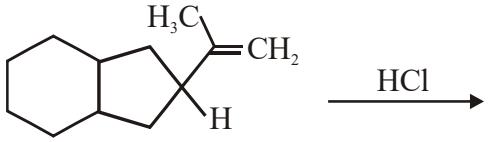
uestion ID : 4165299899

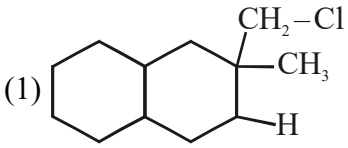
ption 1 ID : 41652939057 ption 2 ID : 41652939054

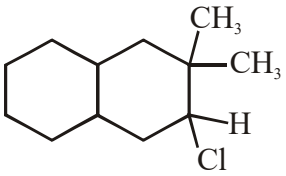
ption 3 ID : 41652939055 Option 4 ID : 41652939056

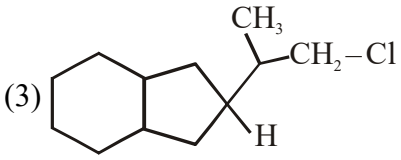
10. The major product of the following reaction is :

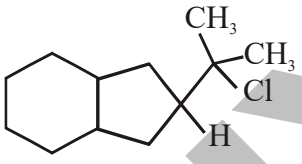
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है –



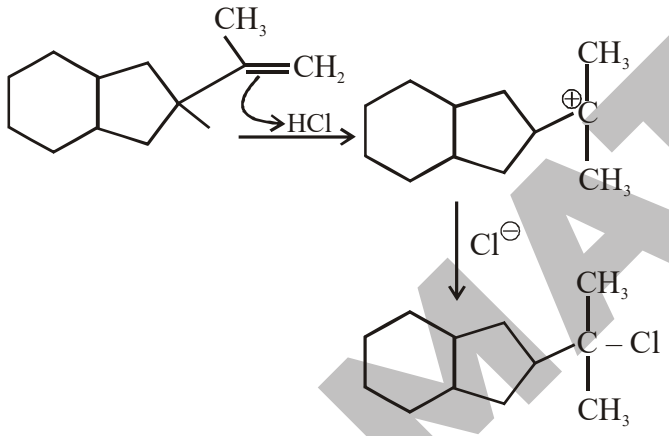
(1) 

(2) 

(3) 

(4) 

A. 4

Sol. 

Question ID : 4165299903

Option 1 ID : 41652939073 Option 2 ID : 41652939070

Option 3 ID : 41652939071 Option 4 ID : 41652939072

11. The correct statement(s) among I to III with respect to potassium ions that are abundant within the cell fluids is/ are :

I. They activate many enzymes

II. They participate in the oxidation of glucose to product ATP

III. Along with sodium ions, they are responsible for the transmission of nerve signals

(1) I and III only (2) I, II and III (3) III only (4) I and II only

कोशिका तरल में बाहुल्य रूप में पाये जाने वाले पोटेशियम आयनों के संबंध में I से III में से सही कथन है/हैं ?

I. वे कई एंजाइमों को सक्रिय करते है।

II. वे ग्लूकोस के आक्सीकरण द्वारा ATP के बनाने में भागीदारी करते है।

III. सोडियम आयन के साथ, तंत्रिकाओं के संकेतों के संचरण के लिए जिम्मेदार होते है।

(1) केवल I तथा III (2) I, II तथा III (3) केवल III (4) केवल I तथा II

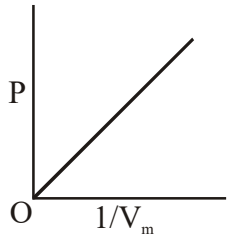
A. K^+ ions act as carries for nerve signals, are activators for many enzymes and participate in the oxidation of glucose to form ATP.

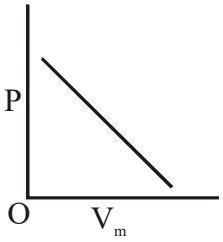
Question ID : 4165299909

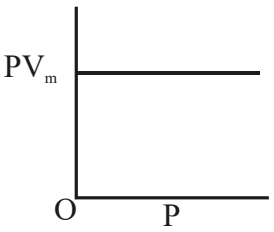
Option 1 ID : 41652939097 Option 2 ID : 41652939094

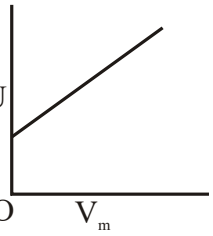
Option 3 ID : 41652939096 Option 4 ID : 41652939095

12. The combination of plots which does not represent isothermal expansion of an ideal gas is :
एक आदर्श गैस के समतापीय प्रसरण को नहीं निरूपित करने वाले प्लाटों का संयोजन है –

(A) 

(B) 

(C) 

(D) 

(1) (B) and (C) (2) (A) and (D) (3) (A) and (C) (4) (B) and (D)

(1) (B) तथा (C) (2) (A) तथा (D) (3) (A) तथा (C) (4) (B) तथा (D)

A. 4

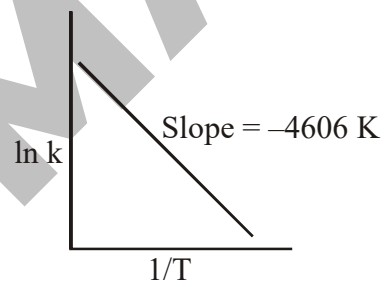
Sol. (B) and (D) are not correct representation for isothermal expansion of ideal gas.

Question ID : 4165299919

Option 1 ID : 41652939134 Option 2 ID : 41652939135

Option 3 ID : 41652939137 Option 4 ID : 41652939136

13. For a reaction, consider the plot of ln k versus 1/T given in the figure. If the rate constant of this reaction at 400K is $10^{-5}s^{-1}$, then the rate constant at 500 K is :
एक अभिक्रिया के लिए दिये गये चित्र में ln k vs 1/T के प्लाट पर विचार कीजिए। यदि इस अभिक्रिया का दर नियतांक 400K पर $10^{-5}s^{-1}$ है, तो 500 K पर उसका दर नियतांक है –



(1) $2 \times 10^{-4}s^{-1}$ (2) $4 \times 10^{-4}s^{-1}$ (3) $10^{-6}s^{-1}$ (4) $10^{-4}s^{-1}$

A. 4

Sol. $\ell n\, K = \ell n\, A - \dfrac{E_a}{RT}$

$$\text{Slope} = \frac{E_a}{R} = 4606\,K$$

$$\ell n\left(\frac{K_2}{K_1}\right) = \frac{E_a}{R}\left(\frac{T_2 - T_1}{T_1 T_2}\right)$$

$$\Rightarrow \quad \log\frac{K_2}{K_1} = \frac{Ea}{2.303R}\left(\frac{500-400}{500\times400}\right)$$

$$\Rightarrow \quad \log\frac{K_2}{K_1} = \frac{4606\times100}{2.303\times500\times400}$$

$$\Rightarrow \quad \log\left(\frac{K_2}{K_1}\right)=1$$

$$\frac{K_2}{K_1}=10$$

$$\Rightarrow \quad K_2 = 10K_1 = 10^{-5} \times 10 = 10^{-4}\ S^{-1}$$

Question ID : 4165299924

Option 1 ID : 41652939156 Option 2 ID : 41652939157

Option 3 ID : 41652939155 Option 4 ID : 41652939154

14. The major product of the following reaction is :

निम्नलिखित अभिक्रिया का मुख्य उत्पाद है –

$$CH_3CH_2\underset{Br}{\underset{|}{CH}}-\underset{Br}{\underset{|}{CH_2}} \xrightarrow[\text{in liq } NH_3]{\text{(i) KOH alc.}\ \text{(ii) } NaNH_2}$$

(1) $CH_3CH_2\underset{NH_2}{\underset{|}{CH}}-\underset{NH_2}{\underset{|}{CH_2}}$ (2) $CH_3CH=C=CH_2$

(3) $CH_3CH=CHCH_2NH_2$ (4) $CH_3CH_2C\equiv CH$

A. 4

Sol.

$$CH_3-CH_2-\underset{Br}{\underset{|}{\overset{H}{\overset{|}{C}}}}-\underset{Br}{\underset{|}{\overset{H}{\overset{|}{C}}}}-H \xrightarrow{\text{alc.KOH}} CH_3CH_2CH=CHBr$$

$$CH_3CH_2CH=CHBr \xrightarrow{NaNH_2} CH_3CH_2-C\equiv C-H$$

Question ID : 4165299896

Option 1 ID : 41652939044 Option 2 ID : 41652939043

Option 3 ID : 41652939042 Option 4 ID : 41652939045

15. The pair that does NOT require calcination is :

(1) Fe_2O_3 and $CaCO_3.MgCO_3$ (2) $ZnCO_3$ and CaO

(3) ZnO and $Fe_2O_3.\ xH_2O$ (4) ZnO and MgO

युग्म जिसके लिए निस्तापन की आवश्यकता नहीं होती है, वह है –

(1) Fe_2O_3 तथा $CaCO_3.MgCO_3$ (2) $ZnCO_3$ तथा CaO

(3) ZnO तथा $Fe_2O_3.\ xH_2O$ (4) ZnO तथा MgO

A. 4

Sol. ZnO and MgO

They are oxides while other are carbonates or hydrated oxides which require calcination.

Question ID : 4165299907

Option 1 ID : 41652939089 Option 2 ID : 41652939087

Option 3 ID : 41652939086 Option 4 ID : 41652939088

16. The element that shows greater ability to form pπ – pπ multiple bonds, is :
pπ – pπ बहुबंध बनाने की प्रबल योग्यता रखने वाला तत्व है –
(1) C (2) Ge (3) Si (4) Sn

A. 1

Sol. Carbon has small size so effective, lateral overlapping between 2p and 2p.

Question ID : 4165299906

Option 1 ID : 41652939083 Option 2 ID : 41652939084

Option 3 ID : 41652939082 Option 4 ID : 41652939085

17. The upper stratosphere consisting of the ozone layer protects us from the sun's radiation that falls in the wavelength region of :
ऊपरी समतापमंडल जिसमें उपस्थित ओजोन परत हमें सूर्य के विकिरण से बचाती है, उसका तरंगदैर्ध्य क्षेत्र है –
(1) 200 - 315 nm (2) 400 -550 nm (3) 600 -750 nm (4) 0.8 - 1.5 nm

A. 1

Sol. Ozone layer protects from ultra violet radiation.
$\therefore$ Wavelength range lies in 200 – 315 nm

Question ID : 4165299914

Option 1 ID : 41652939115 Option 2 ID : 41652939116

Option 3 ID : 41652939117 Option 4 ID : 41652939114

18. The volume strength of 1M H_2O_2 is : (Molar mass of H_2O_2 = 34g mol^{-1})
1M H_2O_2 का आयतन सामर्थ्य है (H_2O_2 का मोलर द्रव्यमान = 34g mol^{-1})
(1) 16.8 (2) 5.6 (3) 11.35 (4) 22.4

A. 3

Sol. Volume strength $\approx 11.2 \times M$
≈ 11.2

Question ID : 4165299908

Option 1 ID : 41652939092 Option 2 ID : 41652939090

Option 3 ID : 41652939091 Option 4 ID : 41652939093

19. $\wedge_m^\circ$ for NaCl, HCl and NaA are 126.4, 425.9 and 100.5 S cm^2mol^{-1}, respectively. If the conductivity of 0.001 M HA is 5×10^{-5}S cm^{-1}, degree of dissociation of HA is :
NaCl, HCl तथा NaA के लिए $\wedge_m^\circ$ क्रमशः 126.4, 425.9 तथा 100.5 S $cm^2\,mol^{-1}$ है। यदि 0.001 M HA की चालकता 5×10^{-5}S cm^{-1} हो तो HA की वियोजन मात्रा है –
(1) 0.25 (2) 0.75 (3) 0.125 (4) 0.50

A. 3

Sol. $\Lambda_m^\circ(NaCl) = 126.4\,S\,cm^2\,mol^{-1}$

$\Lambda_m^\circ(HCl) = 425.9\,S\,cm^2\,mol^{-1}$

$\Lambda_m^\circ(NaA) = 100.5\,S\,cm^2\,mol^{-1}$

$\Lambda_m^\circ(HA) = 425.9 - 126.4 + 100.5 = 400\ S\ cm^2\ mol^{-1}$

$K(HA) = 5 \times 10^{-5}\ S\ cm^{-1}$

$$\Lambda_m^C = \frac{K \times 1000}{\text{Molarity}} = \frac{5 \times 10^{-5} \times 1000}{0.001} = 50$$

$$\alpha = \frac{\Lambda_m^C}{\Lambda_m} = \frac{50}{400} = 0.125$$

Question ID : 4165299923

Option 1 ID : 41652939150 Option 2 ID : 41652939153

Option 3 ID : 41652939151 Option 4 ID : 41652939152

20. If K_{sp} of Ag_2CO_3 is 8×10^{-12}, the molar solubility of Ag_2CO_3 in 0.1 M $AgNO_3$ is :
यदि Ag_2CO_3 का K_{sp} 8×10^{-12} है तो Ag_2CO_3 की 0.1 M $AgNO_3$ में मोलर विलेयता है –

(1) 8×10^{-13}M (2) 8×10^{-10}M (3) 8×10^{-12}M (4) 8×10^{-11}M

A. 2

Sol. $$\underset{0.1}{AgNO_3} \longrightarrow \underset{0.1}{Ag^+} + NO_3^-$$

$$Ag_2CO_3 \rightleftharpoons \underset{0.1+2x \approx 0.1}{2Ag^+} + \underset{x}{CO_3^{2-}}$$

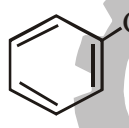
$$K_{sp} = [Ag^+]^2[CO_3^{2-}]$$
$$= (0.1)^2\, x = 8 \times 10^{-12}$$
$$0.01 \times = 8 \times 10^{-12}$$
$$x = 8 \times 10^{-10}\ M$$

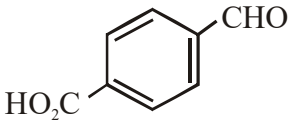
Question ID : 4165299922

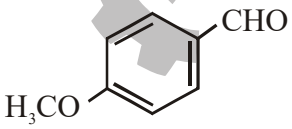
Option 1 ID : 41652939149 Option 2 ID : 41652939146

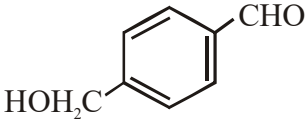
Option 3 ID : 41652939148 Option 4 ID : 41652939147

21. The aldehydes which will not form Grignard product with one equivalent Grignard reagents are :
एक समतुल्य ग्रिन्यार अभिक्रिया के साथ ग्रिन्यार उत्पाद नहीं देने वाले ऐल्डिहाइड हैं –

(A) 

(B) 

(C) 

(D) 

(1) (C), (D) (2) (B), (C) (3) (B), (C), (D) (4) (B), (D)

A. 4

Sol. Grignard reagent will not react with aldehydes if it has a functional group which contains acidic hydrogen.
Options (B) and (D) have —COOH and — CH_2OH respectively which contain acidic H-atom.

Question ID : 4165299901

Option 1 ID : 41652939065 Option 2 ID : 41652939062

Option 3 ID : 41652939064 Option 4 ID : 41652939063

22. Chlorine on reaction with hot and concentrated sodium hydroxide gives :

(1) Cl^- and ClO_3^- (2) Cl^- and ClO^- (3) ClO_2^- (4) Cl^- and ClO_2^-

गर्म तथा सान्द्र सोडियम हाइड्राक्साइड के साथ क्लोरीन की अभिक्रिया देती है –

(1) Cl^- तथा ClO_3^- (2) Cl^- तथा ClO^- (3) ClO_2^- (4) Cl^- तथा ClO_2^-

A. 1

Sol. $3Cl_2 + 6NaOH \longrightarrow 5NaCl + NaClO_3 + 3H_2O$

Question ID : 4165299911

Option 1 ID : 41652939103 Option 2 ID : 41652939105

Option 3 ID : 41652939102 Option 4 ID : 41652939104

23. If the de Broglie wavelength of the electron in n^{th} Bohr orbit in a hydrogenic atom is equal to $1.5\ \pi a_0$ (a_0 is Bohr radius), then the value of n/z is :

यदि एक हाइड्रोजन परमाणु में, n वें (n^{th}) बोर कक्षक में स्थित इलेक्ट्रॉन का दे ब्राग्ली तरंगदैर्ध्य $1.5\ \pi a_0$ के बराबर है, तो n/z का मान है : (a_0 बोर त्रिज्या है)

(1) 0.40 (2) 1.50 (3) 0.75 (4) 1.0

A. 3

Sol. $n\lambda = 2\pi r$

$$r = a_0 \frac{n^2}{z}$$

$$n\lambda = \frac{2\pi a_0 n^2}{z}$$

$$\lambda = \frac{2\pi a_0 n}{z}$$

$$\frac{n}{z} = \frac{\lambda}{2\pi a_0}$$

$$\frac{n}{z} = \frac{1.5\pi a_0}{2\pi a_0}$$

$$\Rightarrow \quad \frac{n}{z} = \frac{3}{2} = 0.75$$

Question ID : 4165299918

Option 1 ID : 41652939133 Option 2 ID : 41652939131

Option 3 ID : 41652939132 Option 4 ID : 41652939130

24. Molecules of benzoic acid (C_6H_5COOH) dimerise in benzene. 'w' g of the acid dissolved in 30g of benzene shows a depression in freezing point equal to 2K. If the percentage association of the acid to form dimer in the solution is 80, then w is : (Given that $K_f = 5\ K\ kg\ mol^{-1}$, Molar mass of benzoic acid = 122 g mol^{-1})

बेन्जोइक अम्ल (C_6H_5COOH) के अणु बेन्जीन में द्वितयित होते है। 30 g बेन्जीन में घुलित 'w' g अम्ल 2K के बराबर हिमांक में अवनमन प्रदर्शित करता है। यदि विलयन में अम्ल के संगुणन का प्रतिशत 80 है तो w कां मान है : (दिया गया है $K_f = 5\ K\ kg\ mol^{-1}$, बेन्जोइक एसिड का मोलर द्रव्यमान = 122 g mol^{-1})

(1) 1.0 g (2) 1.5 g (3) 1.8 g (4) 2.4g

A. 4

Sol. $2C_6H_5COOH \longrightarrow (C_6H_5COOH)_2$

t = 0	1	0
t	$1 - 2\alpha$	α

Moles at equilibrium = $1 - 2\alpha + \alpha = 1 - \alpha$

$2\alpha = 0.8,\ \alpha = 0.4$

Moles at equilbrium = 0.6

i = 0.6

$$\Delta T_f = ik_f m \quad \Rightarrow \quad 2 = 0.6 \times 5 \times \left(\frac{w}{\frac{122}{30}}\right) \times 1000$$

w = 2.4 g

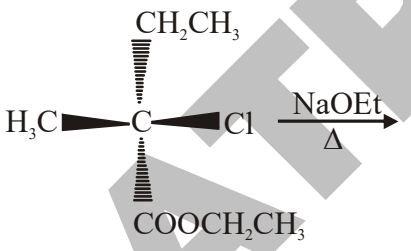
Question ID : 4165299921

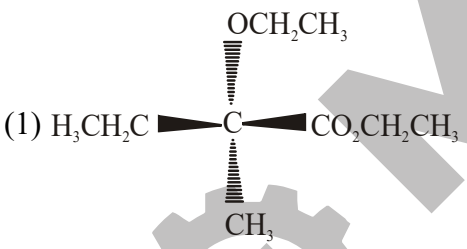
Option 1 ID : 41652939142 Option 2 ID : 41652939145

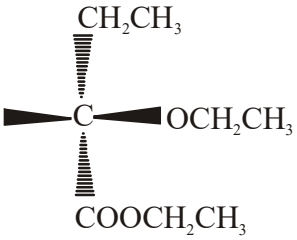
Option 3 ID : 41652939143 Option 4 ID : 41652939144

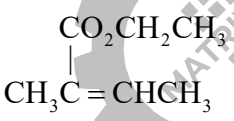
25. The major product of the following reaction is :

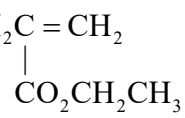
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है –



(1) 

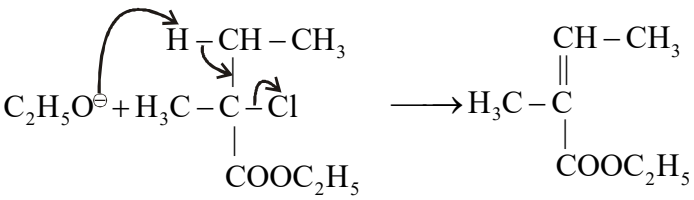
(2) 

(3) 

(4) 

A. 3

Sol. High temperature and strong base favours elimination reaction forming more stable alkene according to Saytzeff rule.

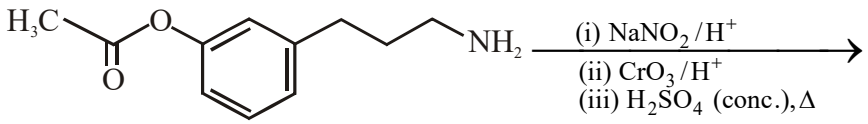


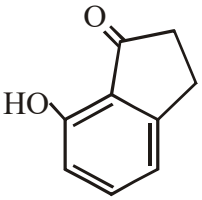
Question ID : 4165299905

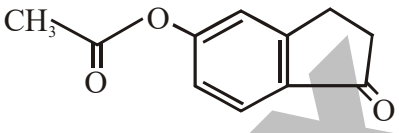
Option 1 ID : 41652939080 Option 2 ID : 41652939078

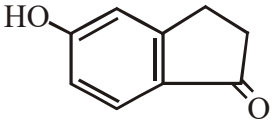
Option 3 ID : 41652939079 Option 4 ID : 41652939081

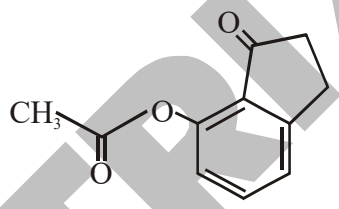
26. The major product of the following reaction is :
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है



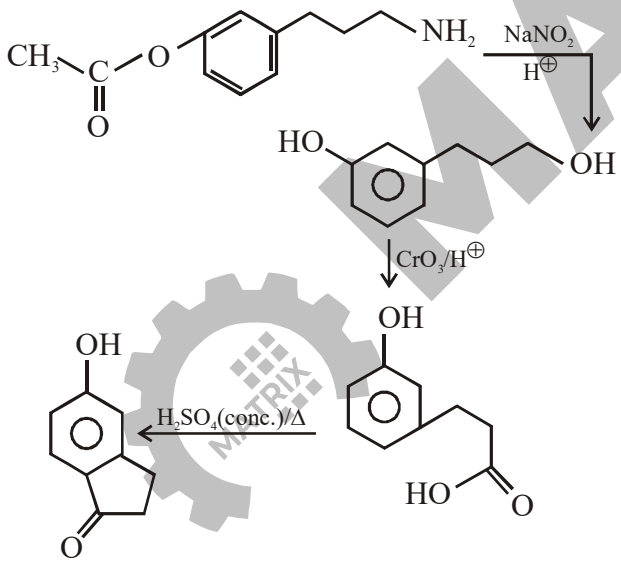
(1) 

(2) 

(3) 

(4) 

A. 3

Sol. 

Question ID : 4165299898

Option 1 ID : 41652939050 Option 2 ID : 41652939053

Option 3 ID : 41652939051 Option 4 ID : 41652939052

27. The correct order of atomic radii is :
परमाणु त्रिज्याओं का सही क्रम है –

(1) Ho > N > Eu > Ce (2) N > Ce > Eu > Ho (3) Eu > Ce > Ho > N (4) Ce > Eu > Ho > N

A. 3

Sol. Atomic radii follows the order

Eu > Ce > Ho > N

199 pm 183 pm 176 pm 70 pm

Question ID : 4165299912

Option 1 ID : 41652939109 Option 2 ID : 41652939108

Option 3 ID : 41652939106 Option 4 ID : 41652939107

28. Among the following, the false statement is :

(1) Letex is a colloidal solution of rubber particles which are positively charged

(2) Tyndall effect can be used to distinguish between a colloidal solution and true solution.

(3) It is possible to cause artificial rain by throwing electrified sand carrying charge opposite to the one on clouds from an aeroplane.

(4) Lyophilic sol can be coagulated by adding an electrolyte.

निम्नलिखित में से असत्य कथन है –

(1) लेटेक्स, रबर के कणों का एक कोलॉइडी विलयन है, जो धनावेशित होते है।

(2) टिन्डल प्रभाव का उपयोग एक कोलॉइडी विलयन तथा वास्तविक विलयन में अंतर करने के लिए किया जा सकता है।

(3) वायुयान की सहायता से बादलों पर उपस्थित आवेश से विपरीत आवेशित रेत के कणों को फेंक कर कृत्रिम वर्षा करवाना संभव है।

(4) द्रवरागी सॉल का स्कन्दन एक विद्युत अपघटय मिलाकर किया जा सकता है।

A. 1

Sol. Latex is colloidal solution of rubber particles which are negatively charged.

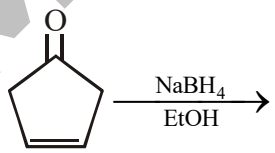
Question ID : 4165299925

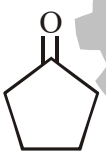
Option 1 ID : 41652939159 Option 2 ID : 41652939158

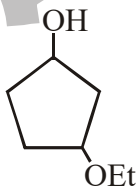
Option 3 ID : 41652939160 Option 4 ID : 41652939161

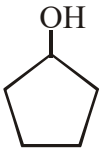
29. The major product of the following reaction is :

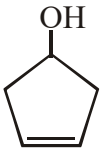
निम्नलिखित अभिक्रिया का मुख्य उत्पाद है –



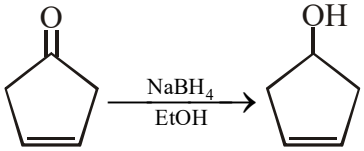
(1) 

(2) 

(3) 

(4) 

A. 4

Sol. 

$NaBH_4$ does not reduces the double bond in β-γ unsaturated aldehydes/ ketones.

Only the keto group will be reduced.

Question ID : 4165299900

Option 1 ID : 41652939060 Option 2 ID : 41652939061

Option 3 ID : 41652939058 Option 4 ID : 41652939059

30. The magnetic moment of an octahedral homoleptic Mn(II) complex is 5.9 BM. The suitable ligand for this complex is :

(1) ethylenediamine (2) CN^- (3) CO (4) NCS^-

एक अष्टफलक होमोलेप्टिक Mn(II) के संकुल का चुम्बकीय आघूर्ण 5.9 BM है। इस संकुल के लिए उपयुक्त संलग्नी है।

(1) ethylenediamine (2) CN^- (3) CO (4) NCS^-

A. 4

Sol. Electronic configuration of Mn^{2+} is

$Mn^{+2} : 3d^5$

It has 5 unpaired electrons which corresponds to magnetic moment of $\sqrt{35}$ = 5.9 BM. This shows that the homoleptic complex of Mn^{2+} has only weak field ligands and that is NCS^-. The remaining three ligands are strong field ligands.

Question ID : 4165299913

Option 1 ID : 41652939113 Option 2 ID : 41652939112

Option 3 ID : 41652939110 Option 4 ID : 41652939111