Chemistry Section A

|	
Section Id :	864351982
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511209
Question Shuffling Allowed :	Yes

**Question Number : 31 Question Id : 86435121190 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1**

Which one of the following is the correct PV vs P plot at constant temper
gas ? (P and V stand for pressure and volume of the gas respectively)

Options :
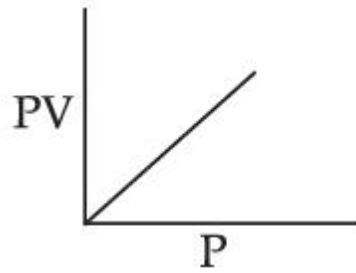
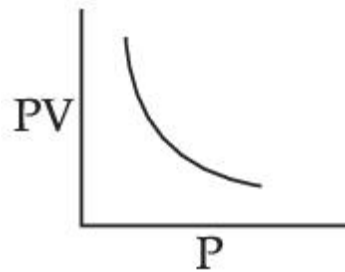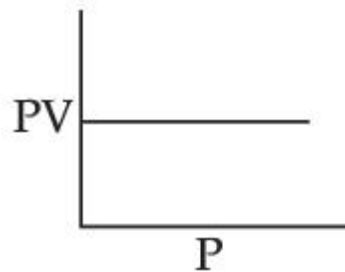86435170151.
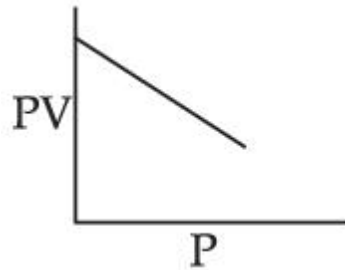
86435170152.

86435170153.

86435170154.

Question Number : 32 Question Id : 86435121191 Question Type : MCQ Option Shuffling : Yes Is Question Man

Correct Marks : 4 Wrong Marks : 1

In the structure of the dichromate ion, there is a :

Options :

86435170155. linear symmetrical $Cr-O-Cr$ bond.

86435170156. linear unsymmetrical $Cr-O-Cr$ bond.

86435170157. non-linear symmetrical $Cr-O-Cr$ bond.

86435170158. non-linear unsymmetrical $Cr-O-Cr$ bond.

Question Number : 33 Question Id : 86435121192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Which one of the following 0.10 M aqueous solutions will exhibit the largest freezing point depression ?

Options :

86435170159. glycine

86435170160. glucose

86435170161. $KHSO_4$

86435170162. hydrazine

Select the graph that correctly describes the adsorption isotherms at two temperatures T_1 and T_2 ($T_1 > T_2$) for a gas :

($x -$ mass of the gas adsorbed

$m -$ mass of adsorbent

$P -$ pressure)

Options :

86435170163.

86435170164.

86435170165.

86435170166.

Question Number : 35 Question Id : 86435121194 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
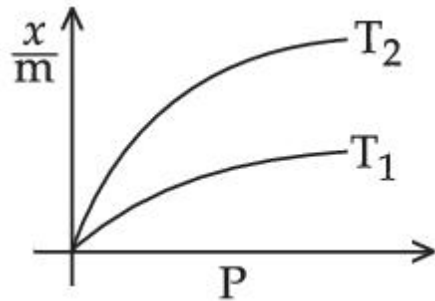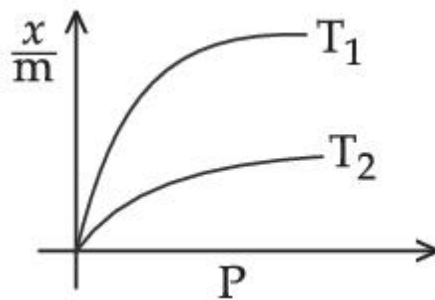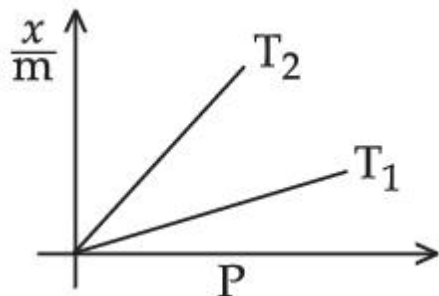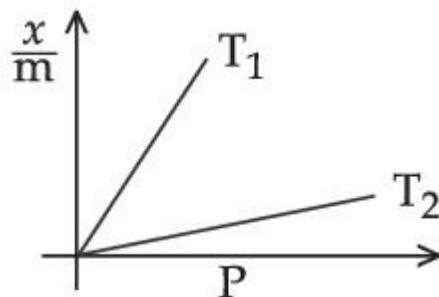**Correct Marks : 4 Wrong Marks : 1**

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Metallic character decreases and non-metallic character increases on moving from left to right in a period.

Reason (R) : It is due to increase in ionisation enthalpy and decrease in electron gain enthalpy, when one moves from left to right in a period.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options :

86435170167. Both (A) and (R) are correct and (R) is the correct explanation of (A).

86435170168. Both (A) and (R) are correct but (R) is not the correct explanation of (A).

86435170169. (A) is true but (R) is false.

86435170170. (A) is false but (R) is true.

Question Number : 36 Question Id : 86435121195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Aluminium is extracted from bauxite by the electrolysis of molten mixture of Al_2O_3 with cryolite.

Reason (R) : The oxidation state of Al in cryolite is $+3$.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options :

86435170171. Both (A) and (R) are correct and (R) is the correct explanation of (A).

86435170172. Both (A) and (R) are correct but (R) is not the correct explanation of (A).

86435170173. (A) is true but (R) is false.

86435170174. **(A)** is false but **(R)** is true.

Question Number : 37 Question Id : 86435121196 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I : The process of producing syn-gas is called gasification of coal.

Statement II : The composition of syn-gas is $CO + CO_2 + H_2$ (1 : 1 : 1).

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options :

86435170175. Both **Statement I** and **Statement II** are true.

86435170176. Both **Statement I** and **Statement II** are false.

86435170177. **Statement I** is true but **Statement II** is false.

86435170178. **Statement I** is false but **Statement II** is true.

Question Number : 38 Question Id : 86435121197 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The major component/ingredient of Portland Cement is :

Options :

86435170179. tricalcium aluminate

86435170180. dicalcium aluminate

86435170181. tricalcium silicate

86435170182. dicalcium silicate

Question Number : 39 Question Id : 86435121198 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Which one of the following lanthanides exhibits $+2$ oxidation state with diamagnetic nature ? (Given Z for Nd $= 60$, Yb $= 70$, La $= 57$, Ce $= 58$)

Options :

86435170183. Nd

86435170184. Yb

86435170185. La

86435170186. Ce

Question Number : 40 Question Id : 86435121199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The denticity of an organic ligand, biuret is :

Options :

86435170187. 2

86435170188. 4

86435170189. 6

86435170190. 3

Question Number : 41 Question Id : 86435121200 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

BOD values (in ppm) for clean water (A) and polluted water (B) are expected respectively as :

Options :

86435170191. A > 15, B > 47

86435170192. A < 5 , B > 17

86435170193. A > 50, B < 27

86435170194. A > 25, B < 17

Question Number : 42 Question Id : 86435121201 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : A simple distillation can be used to separate a mixture of propanol and propanone.

Reason (R) : Two liquids with a difference of more than 20°C in their boiling points can be separated by simple distillations.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options :

86435170195. Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**.
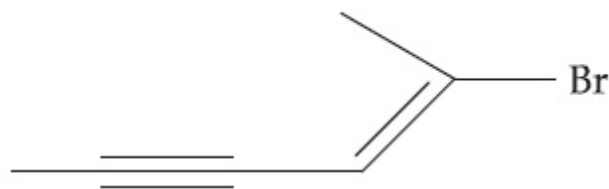
86435170196. Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**.

86435170197. **(A)** is true but **(R)** is false.

86435170198. **(A)** is false but **(R)** is true.

Question Number : 43 Question Id : 86435121202 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Choose the **correct** name for compound given below :

86435170199.   (4E)-5-Bromo-hex-4-en-2-yne

86435170200.   (2E)-2-Bromo-hex-2-en-4-yne

86435170201.   (2E)-2-Bromo-hex-4-yn-2-ene

86435170202.   (4E)-5-Bromo-hex-2-en-4-yne

Question Number : 44 Question Id : 86435121203 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Treatment of bromine water with propene yields 1-bromopropan-2-ol.

Reason (R) :   Attack of water on bromonium ion follows Markovnikov rule and results in 1-bromopropan-2-ol.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options :

86435170203.   Both **(A)** and **(R)** are true and **(R)** is the correct explanation of **(A)**.

86435170204.   Both **(A)** and **(R)** are true but **(R)** is NOT the correct explanation of **(A)**.
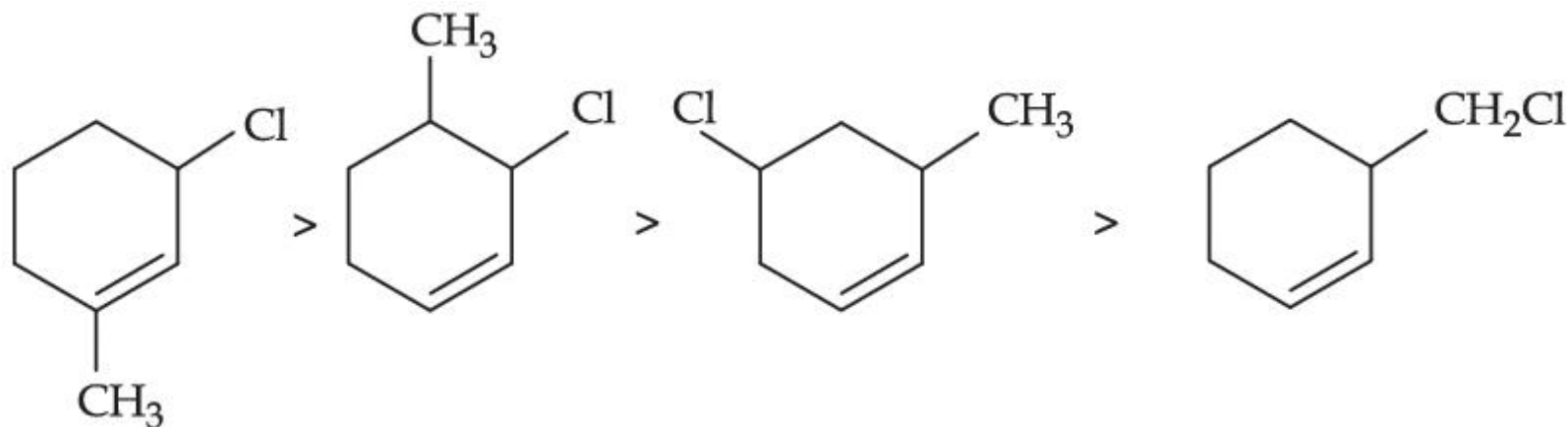
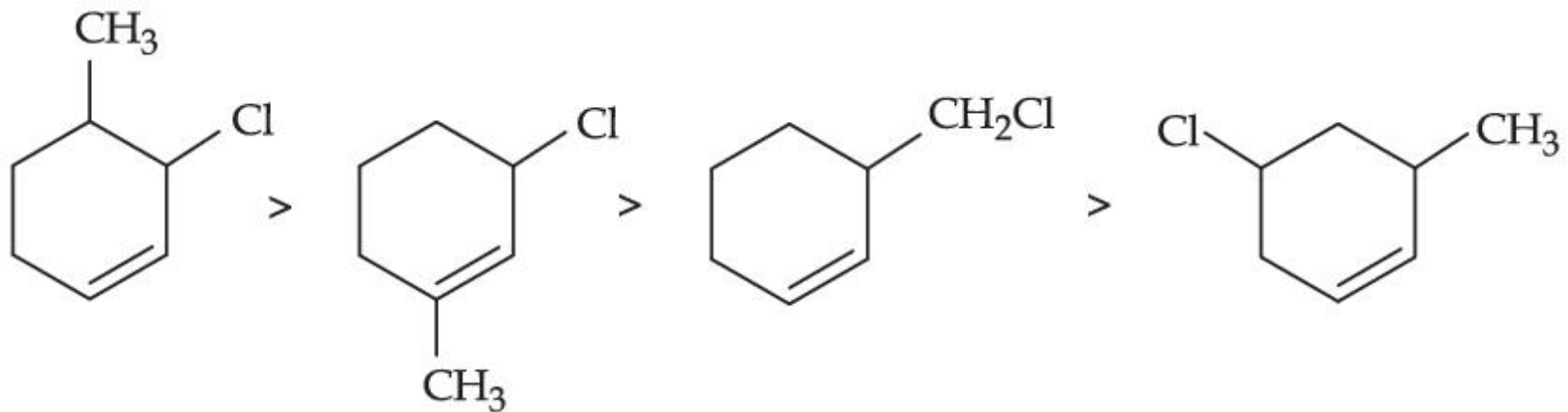86435170205.   **(A)** is true but **(R)** is false.

86435170206. **(A)** is false but **(R)** is true.

Question Number : 45 Question Id : 86435121204 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
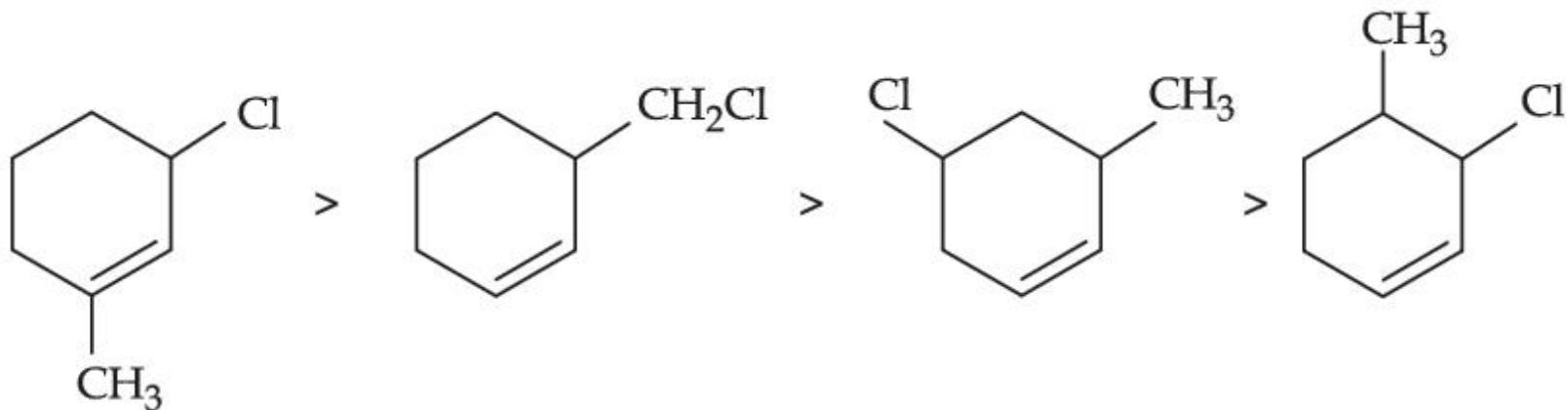**Correct Marks : 4 Wrong Marks : 1**

The **correct** order of reactivity of the given chlorides with acetate in acetic acid is :

Options :

86435170207.
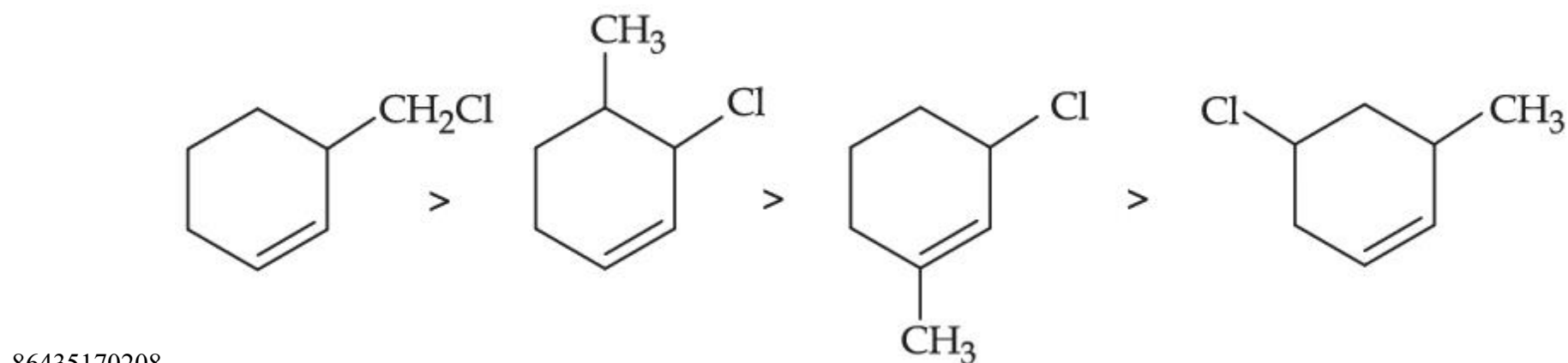
86435170208.

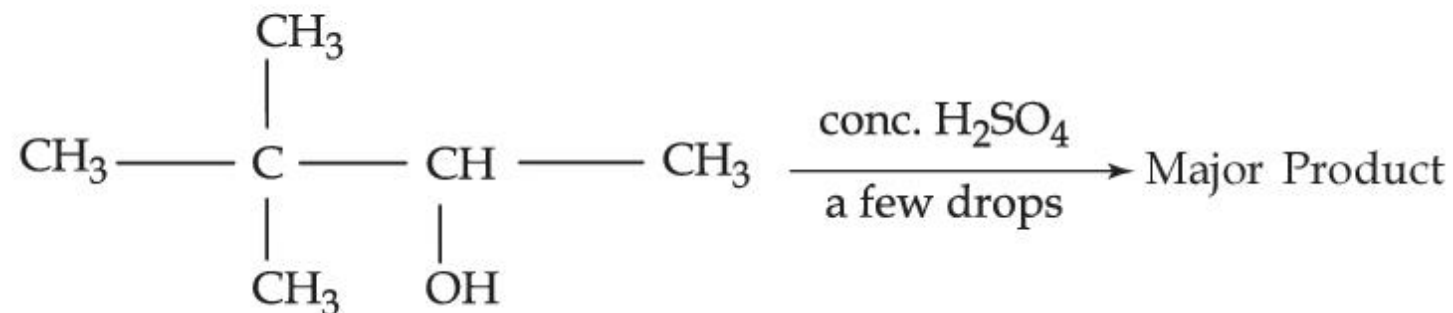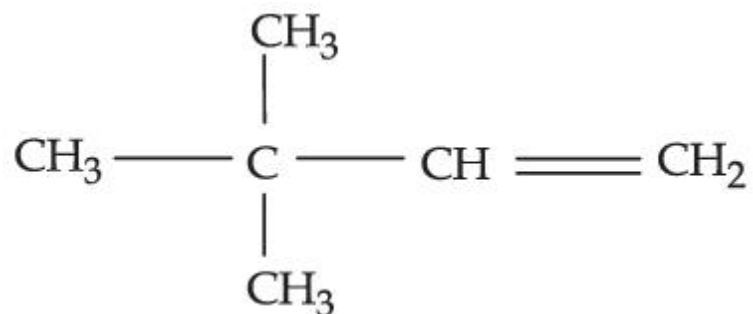86435170209.

86435170210.

Question Number : 46 Question Id : 86435121205 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
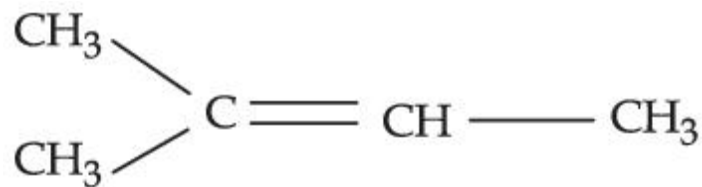**Correct Marks : 4 Wrong Marks : 1**
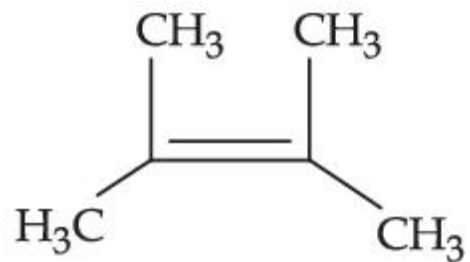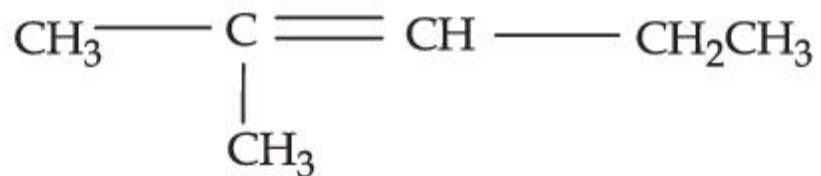
The major product formed in the following reaction is :

CH₃—C(CH₃)(CH₃)—CH(OH)—CH₃ $\xrightarrow[\text{a few drops}]{\text{conc. } H_2SO_4}$ Major Product

Options :

86435170211.

CH_3—$C(CH_3)(CH_3)$—CH=CH_2

86435170212.

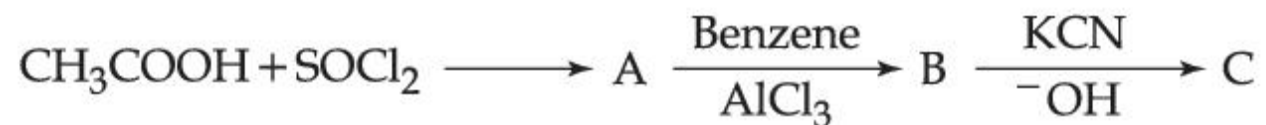$(CH_3)(CH_3)C$=CH—CH_3

86435170213.

$(CH_3)(H_3C)C$=$C(CH_3)(CH_3)$

86435170214.

Question Number : 47 Question Id : 86435121206 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

The structure of product C, formed by the following sequence of reactions is :

$$CH_3COOH + SOCl_2 \longrightarrow A \xrightarrow[AlCl_3]{Benzene} B \xrightarrow[^-OH]{KCN} C$$

Options :

86435170215.
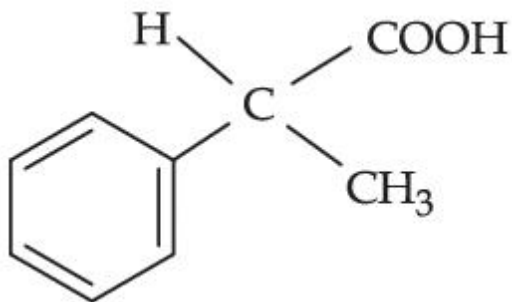

86435170216.

86435170217.

86435170218.

Question Number : 48 Question Id : 86435121207 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
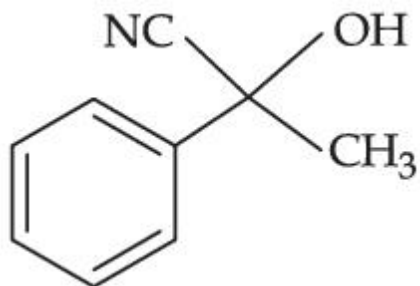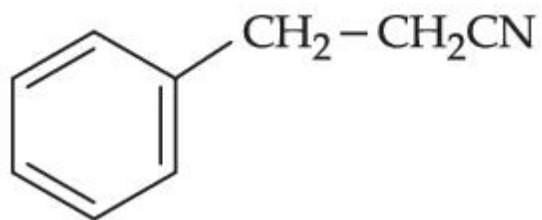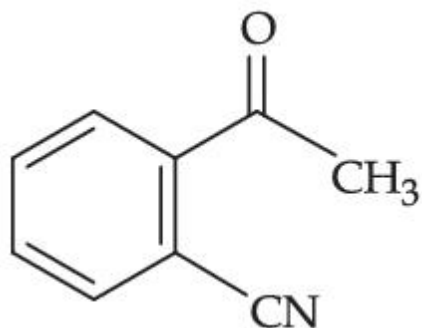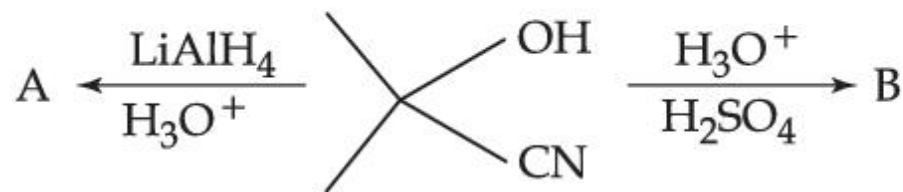**Correct Marks : 4 Wrong Marks : 1**

The major products A and B in the following set of reactions are :

Options :

86435170219.

86435170220. $A =$ (structure with OH and NH$_2$ groups) , $B =$ (structure with OH and CHO groups)

86435170221. $A =$ (structure with OH and OH groups) , $B =$ (structure with OH and CHO groups)

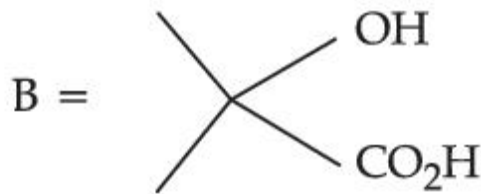86435170222. $A =$ (structure with OH and NH$_2$ groups) , $B =$ (structure with =CH and COOH groups)
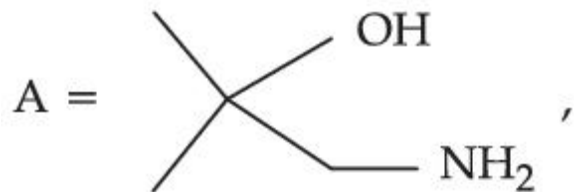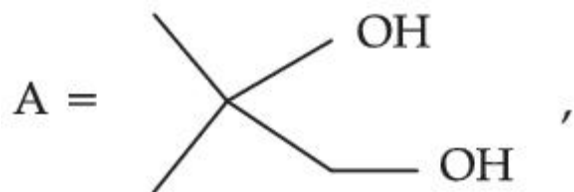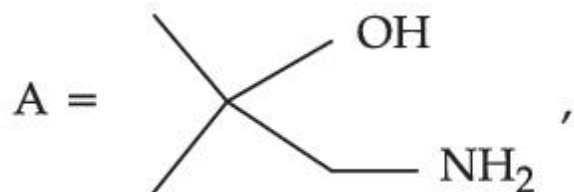
Question Number : 49 Question Id : 86435121208 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Monomer of Novolac is :

Options :

86435170223. *o*-Hydroxymethylphenol.

86435170224. phenol and melamine.

86435170225. 1,3-Butadiene and styrene.

86435170226. 3-Hydroxybutanoic acid.

Question Number : 50 Question Id : 86435121209 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Which one of the following compounds contains β-C_1-C_4 glycosidic linkage ?

Options :

86435170227. Lactose

86435170228. Amylose

86435170229. Sucrose

86435170230. Maltose

Chemistry Section B

Section Id :	864351983
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511210
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 86435121210 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The molarity of the solution prepared by dissolving 6.3 g of oxalic acid ($H_2C_2O_4 \cdot 2H_2O$) in 250 mL of water in mol L^{-1} is $x \times 10^{-2}$. The value of x is _____.

(Nearest integer)

[Atomic mass : H : 1.0, C : 12.0, O : 16.0]

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 52 Question Id : 86435121211 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

Ge (Z=32) in its ground state electronic configuration has x completely filled orbitals with $m_l = 0$. The value of x is _____ .

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
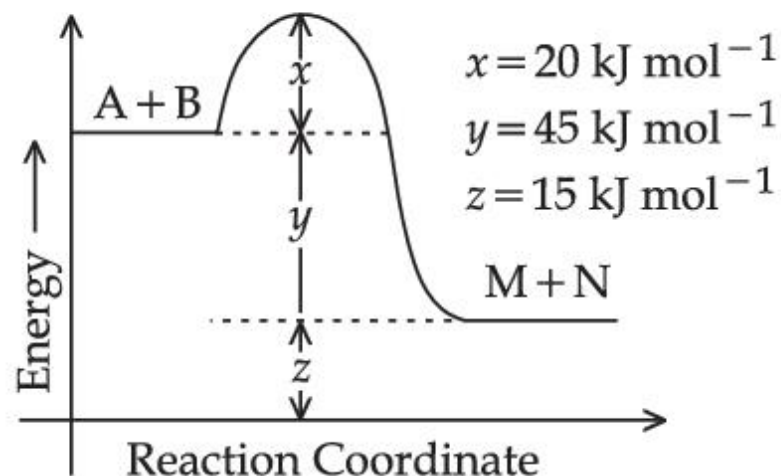**Text Areas :** PlainText
Possible Answers :
1

Question Number : 53 Question Id : 86435121212 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

According to the following figure, the magnitude of the enthalpy change of the reaction

$$A + B \rightarrow M + N \text{ in kJ mol}^{-1}$$

is equal to _____. (Integer answer)

$x = 20 \text{ kJ mol}^{-1}$

$y = 45 \text{ kJ mol}^{-1}$

$z = 15 \text{ kJ mol}^{-1}$

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :

1

Question Number : 54 Question Id : 86435121213 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

A_3B_2 is a sparingly soluble salt of molar mass M (g mol^{-1}) and solubility x g L^{-1}. The solubility

product satisfies $K_{sp} = a \left(\dfrac{x}{M} \right)^5$. The value of a is _____ . (Integer ans

Response Type : Numeric

Consider the following cell reaction

$$Cd_{(s)} + Hg_2SO_{4(s)} + \frac{9}{5}H_2O_{(l)} \rightleftharpoons CdSO_4 \cdot \frac{9}{5}H_2O_{(s)} + 2Hg_{(l)}.$$

The value of E^0_{cell} is 4.315 V at 25°C. If $\Delta H° = -825.2$ kJ mol^{-1}, the standard entropy change $\Delta S°$ in J K^{-1} is _____. (Nearest integer)

[Given : Faraday constant = 96487 C mol^{-1}]

For a first order reaction, the ratio of the time for 75% completion of a react 50% completion is _____. (Integer answer)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
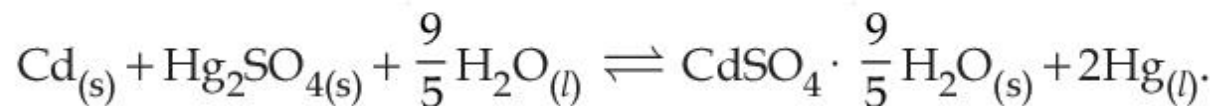**Answers Type :** Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 57 Question Id : 86435121216 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The number of halogen/(s) forming halic (V) acid is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 58 Question Id : 86435121217 Question Type : SA
Correct Marks : 4 Wrong Marks : 0

The number of hydrogen bonded water molecule(s) associated with stoichiometry $CuSO_4 \cdot 5H_2O$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 59 Question Id : 86435121218 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

The total number of reagents from those given below, that can convert nitrobenzene into aniline is _____. (Integer answer)

I. $Sn - HCl$

II. $Sn - NH_4OH$

III. $Fe - HCl$

IV. $Zn - HCl$

V. $H_2 - Pd$

VI. $H_2 - Raney\ Nickel$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 60 Question Id : 86435121219 Question Type : SA

Correct Marks : 4 Wrong Marks : 0

Consider the sulphides HgS, PbS, CuS, Sb_2S_3, As_2S_3 and CdS. Number of these sulphides soluble in 50% HNO_3 is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :