

$$A = 0, B = 1; Y = 0$$

2. ✖

$$A = 1, B = 0; Y = 0$$

3. ✖

$$A = 1, B = 1; Y = 0$$

4. ✔

Question Number : 120 Question Id : 105615120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

A TV transmission antenna is 40 m tall. How much service area it can cover if the receiving antenna is at the ground level?
(radius of the Earth = 6400 km)

Options :

$$640 \pi \times 10^6 \text{ m}^2$$

1. ✖

$$512 \pi \times 10^6 \text{ m}^2$$

2. ✔

$$480 \pi \times 10^6 \text{ m}^2$$

3. ✖

$$440 \pi \times 10^6 \text{ m}^2$$

4. ✖

Chemistry

Section Id :	1056153
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40

Number of Questions to be attempted : 40
Section Marks : 40
Enable Mark as Answered Mark for Review and Clear Response : Yes
Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 1056153
Question Shuffling Allowed : Yes

Question Number : 121 Question Id : 105615121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

In hydrogen atom, the minimum energy required to excite an electron from 2nd orbit to the 3rd orbit is

Options :

1. ✘ 2.2 eV

2. ✘ 2.7 eV

3. ✔ 1.9 eV

4. ✘ 7 eV

Question Number : 122 Question Id : 105615122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The velocity (V) of de Broglie wave is given by

$$\left[\begin{array}{l} \nu = \text{Frequency} \\ m = \text{mass} \\ C = \text{Velocity of light} \end{array} \right]$$

Options :

1. ✘ mC^2

2. ✘ $\nu\lambda$

$$\frac{h\nu}{mC}$$

3. ✓

$$\frac{C^2}{\nu}$$

4. ✘

Question Number : 123 Question Id : 105615123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

How many of the following statements are correct?

- a) 'He' is the second most abundant element in the universe.
- b) the symbol for the element with atomic number 110 is Ds.
- c) Osmium has the highest density among all elements.
- d) Francium is the most electropositive element in the periodic table.

Options :

3

1. ✘

2

2. ✘

4

3. ✓

1

4. ✘

Question Number : 124 Question Id : 105615124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of the first ionization enthalpies of the following elements is

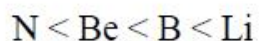
Options :



1. ✓



2. ✖



3. ✖



4. ✖

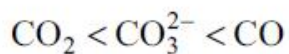
Question Number : 125 Question Id : 105615125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of C–O bond length is

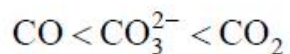
Options :



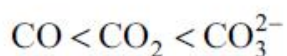
1. ✖



2. ✖



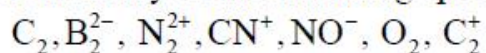
3. ✖



4. ✔

Question Number : 126 Question Id : 105615126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

How many of the following species have the bond order 2 ?



Options :

3

1. ✖

4

2. ✖

6

3. ✓

5

4. ✖

Question Number : 127 Question Id : 105615127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Gases deviate from ideal behaviour at high pressures because the gas molecules

Options :

attract each other

1. ✓

repel each other

2. ✖

show Brownian motion

3. ✖

obey Tyndall effect

4. ✖

Question Number : 128 Question Id : 105615128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

According to kinetic molecular theory of gases, which of the following statements are correct?

- a) The actual volume of the molecules is negligible in comparison to the empty space between them.
- b) Collisions of gas molecules are inelastic.
- c) At any particular time, different particles in the gas have same speed and same kinetic energies.
- d) Pressure is exerted by the gas as a result of collision of the particles with the walls of the container.

Options :

a and b only

1. ✖

a, b and c only

2. ✖

a and d only

3. ✔

a, b, c and d

4. ✖

Question Number : 129 Question Id : 105615129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The amount of 50 % (w/w) solution of hydrochloric acid required to react with 200 g of CaCO_3 would be

Options :

73 g

1. ✖

292 g

2. ✔

146 g

3. ✖

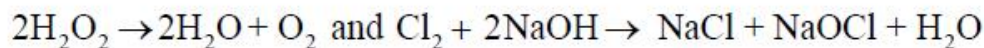
100 g

4. ✖

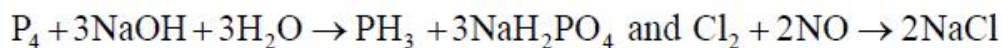
Question Number : 130 Question Id : 105615130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Identify the pair of reactions undergoing disproportionation from the following.

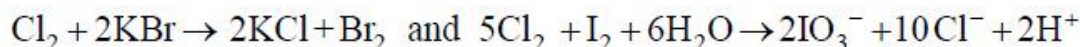
Options :



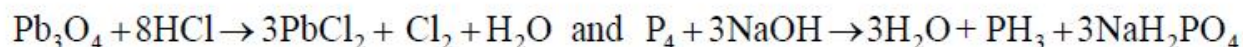
1. ✔



2. ✖



3. ✖



4. ✖

Question Number : 131 Question Id : 105615131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

If 92 g Na reacts with water in open vessel at 300 K. What is the value of work done?
[Assume ideal nature of the gaseous product]

Options :

0.0

1. ✖

- 4988.4 J

2. ✔

- 2494.2 J

3. ✖

- 9976.8 J

4. ✖

Question Number : 132 Question Id : 105615132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

For a reaction $\text{A(s)} \rightleftharpoons \text{B(s)} + \text{C(g)}$ the set of all correct statements are

- K is independent of [A].
- K is dependent on partial pressure of C at a given temperature.
- ΔH will be independent of temperature.
- ΔH is independent of the catalyst addition.

Options :

a, b, c, d

1. ✖

a, b only

2. ✖

3. ✓ a, b, d only

4. ✗ a, b, c only

Question Number : 133 Question Id : 105615133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The pH of pure water at 80 °C is

Options :

1. ✗ 7.0

2. ✗ ∞

3. ✗ > 7.0

4. ✓ < 7.0

Question Number : 134 Question Id : 105615134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

On passing electric current over molten ionic hydrides of s-block elements,

Options :

1. ✓ H_2 is liberated at the anode

2. ✗ H_2 is liberated at the cathode

3. ✗ No reaction takes place

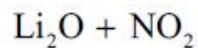
Metal oxidises at the cathode

4. ✖

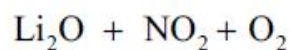
Question Number : 135 Question Id : 105615135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Lithium nitrate on heating gives

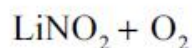
Options :



1. ✖



2. ✔



3. ✖



4. ✖

Question Number : 136 Question Id : 105615136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Aluminium when treated with aqueous NaOH, liberates a gaseous molecule majorly.
The gas is

Options :



1. ✔



2. ✖



3. ✖



4. ✖

Question Number : 137 Question Id : 105615137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The relative order of electronegativity of C, Ge, and Pb is

Options :

1. ✘ $C > Ge > Pb$

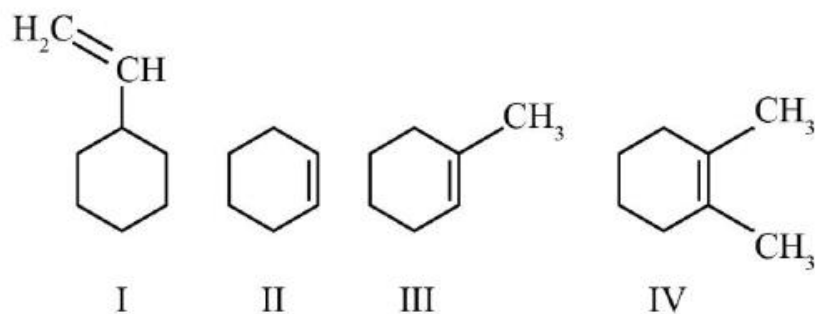
2. ✘ $Ge > C > Pb$

3. ✘ $Pb > C > Ge$

4. ✔ $C > Pb > Ge$

Question Number : 138 Question Id : 105615138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of the stability of the following compounds based on hyperconjugation is



Options :

1. ✔ $IV > III > II > I$

2. ✘ $IV > II > I > III$



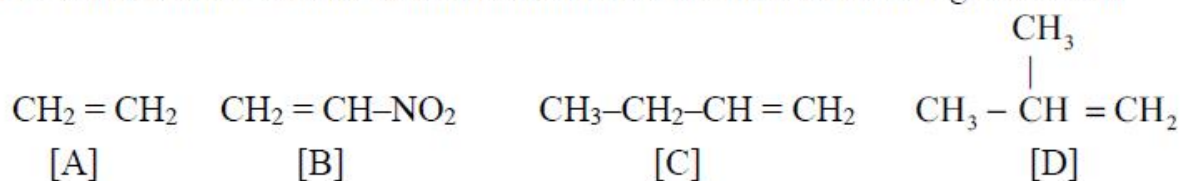
3. ✖



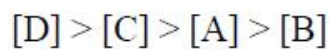
4. ✖

Question Number : 139 Question Id : 105615139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

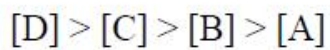
The correct order of rates of addition of Br_2/water to the following alkenes is



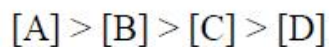
Options :



1. ✔



2. ✖



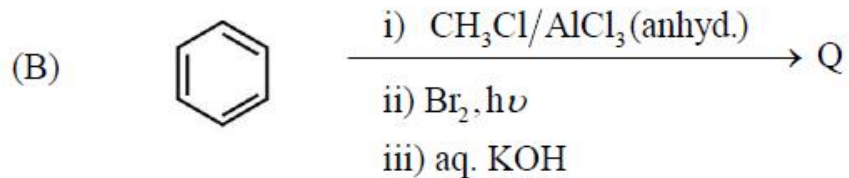
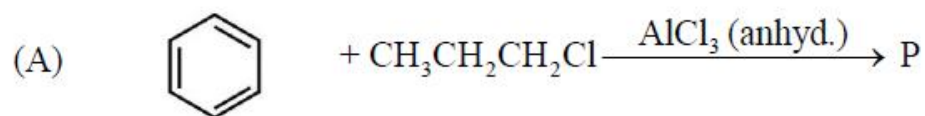
3. ✖



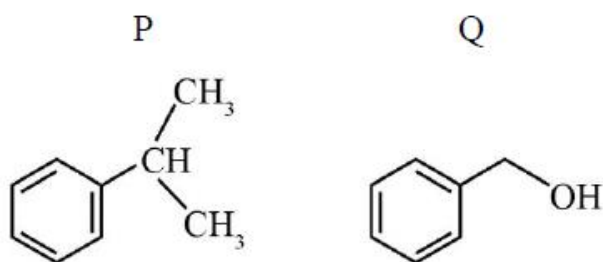
4. ✖

Question Number : 140 Question Id : 105615140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

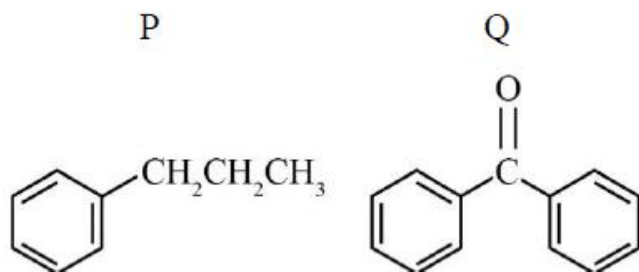
The major products P and Q formed in the following reactions schemes are



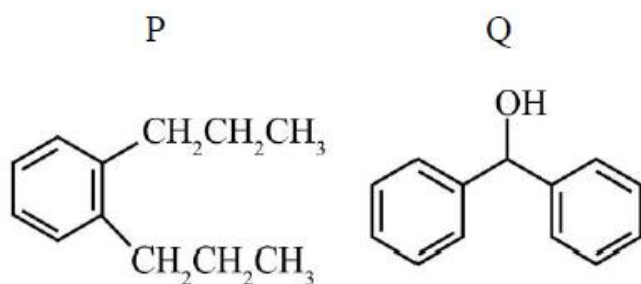
Options :



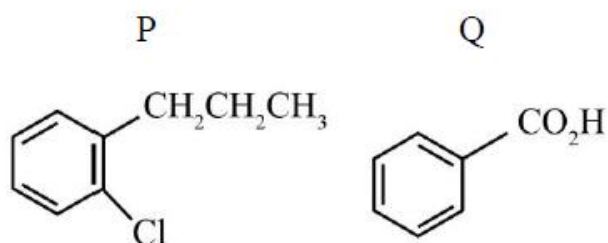
1. ✓



2. ✗



3. ✗



4. ✗

Question Number : 141 Question Id : 105615141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Iron crystallizes in FCC with an edge length of 400 pm. If it contains 0.1 % Schottky defects, calculate its approximate density [AW of Fe = 56 g/mol]

Options :

1. ✓ 5.8 g/cm³

2. ✘ 1.5 g/cm³

3. ✘ 2.9 g/cm³

4. ✘ 8.5 g/cm³

Question Number : 142 Question Id : 105615142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Which of the following are correct for an ideal solution?

a) $\Delta V_{\text{mix}} = 0$

b) $V_{\text{solvent}} + V_{\text{solute}} = V_{\text{solution}}$

c) $\Delta H_{\text{mix}} = 0$

d) $\text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{H}_2\text{CO}_3$ is an example of ideal solution.

Options :

1. ✘ a, b only

2. ✘ b, c only

3. ✓ a, b, c only

a, b, c, d

4. ✖

Question Number : 143 Question Id : 105615143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

At 0 °C, urea solution has an osmotic pressure of 400 mm. On dilution by x times, its osmotic pressure decreased to 100 mm at 20 °C. The dilution factor x is approximately

Options :

4.3

1. ✔

2

2. ✖

5

3. ✖

6.8

4. ✖

Question Number : 144 Question Id : 105615144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The electric charge for electrode deposition of one equivalent of a substance is equal to

Options :

1 A/s

1. ✖

193000 coulombs

2. ✖

$$\frac{96500}{(\text{Atomic weight of the substance})}$$

3. ✖

Charge on 1 mole of electrons

4. ✓

Question Number : 145 Question Id : 105615145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

If the definition of the temperature coefficient of the reaction holds good for a reaction between 27 °C and 37 °C, the activation energy for the reaction in kJ.mol^{-1} is

Options :

102

1. ✘

53.5

2. ✓

∞

3. ✘

141.5

4. ✘

Question Number : 146 Question Id : 105615146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

For As_2S_3 sol, the most effective coagulating agent is

Options :

CaCO_3

1. ✘

NaCl

2. ✘

FeCl_3

3. ✓

Clay

4. ✖

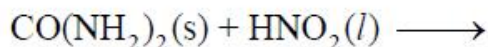
Question Number : 147 Question Id : 105615147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

In which of the following reactions there is no liberation of nitrogen gas

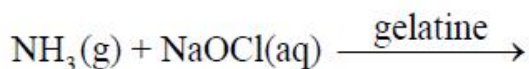
Options :



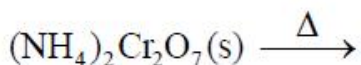
1. ✖



2. ✖



3. ✔

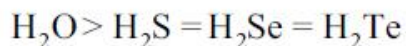


4. ✖

Question Number : 148 Question Id : 105615148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of boiling points of H_2O , H_2S , H_2Se and H_2Te respectively is

Options :



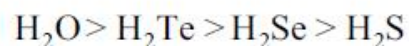
1. ✖



2. ✖



3. ✖



4. ✔

Question Number : 149 Question Id : 105615149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Which of the following is not a mineral of fluorine?

Options :

1. ✘ Fluorspar

2. ✘ Cryolite

3. ✘ Fluoroapatite

4. ✔ Carnallite

Question Number : 150 Question Id : 105615150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The element that even can diffuse through silica glass is

Options :

1. ✔ He

2. ✘ Ar

3. ✘ Kr

4. ✘ Xe

Question Number : 151 Question Id : 105615151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The compound with more covalent character in the following is

Options :



1. ✘



2. ✔



3. ✘



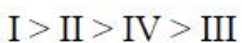
4. ✘

Question Number : 152 Question Id : 105615152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of decreasing field strength of the below given ligands is



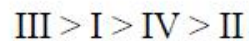
Options :



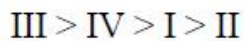
1. ✘



2. ✘



3. ✔



4. ✘

Question Number : 153 Question Id : 105615153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Assertion (A) : The denaturation of proteins can destroy all 1°, 2° and 3° protein structures.

Reason (R) : Curdling of milk is due to denaturation of proteins.

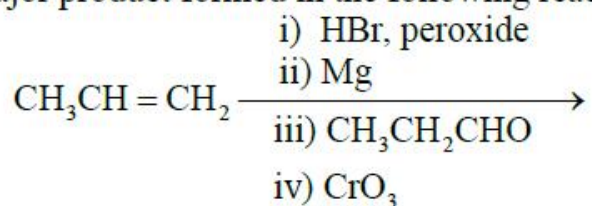
The correct option among the following is

Options :

1. ✖ (A) is true, (R) is true and (R) is the correct explanation for (A)
2. ✖ (A) is true, (R) is true but (R) is not the correct explanation for (A)
3. ✖ (A) is true but (R) is false
4. ✔ (A) is false but (R) is true

Question Number : 154 Question Id : 105615154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The major product formed in the following reaction sequence is



Options :

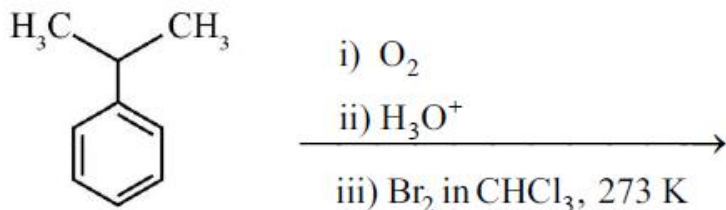
1. ✔ 3-Hexanone
2. ✖ 2-Hexanone
3. ✖ 2-Methyl-3-pentanone

Hexanal

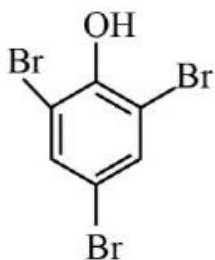
4. ✘

Question Number : 155 Question Id : 105615155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

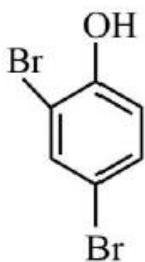
The major aromatic product of the following reaction sequence is



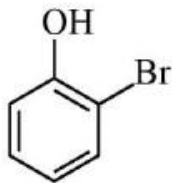
Options :



1. ✘



2. ✘



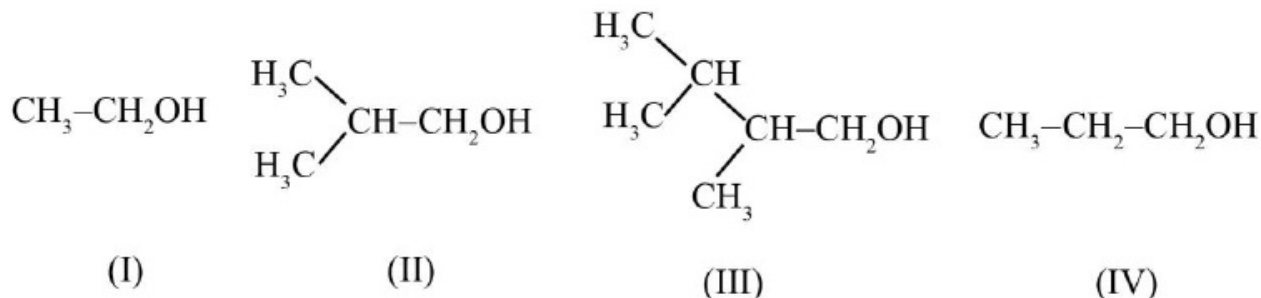
3. ✘



4. ✔

Question Number : 156 Question Id : 105615156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The order of reactivity of the following compounds towards the esterification with acetic acid is



Options :

1. ✘ I > II > III > IV

2. ✘ IV > III > II > I

3. ✔ I > IV > II > III

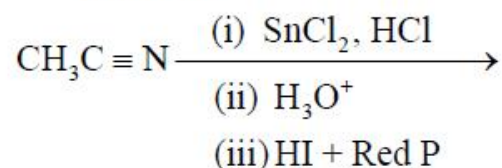
4. ✘ I > IV > III > II

Question Number : 157 Question Id : 105615157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Consider following reaction, where

(A) The change in the functional group and

(B) The corresponding change in the hybridization from starting to the final product A and B are



Options :

A B

-CN to -CH₂-OH sp² to sp³

1. ✘

2. ✖

A	B
-CN to -CONH ₂	sp to sp ²

3. ✖

A	B
-CN to -CH ₂ NH ₂	sp to sp ³

4. ✔

A	B
-CN to -CH ₃	sp to sp ³

Question Number : 158 Question Id : 105615158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Which of the following reactions will give benzophenone as major product?

- (A) Benzoyl chloride + Benzene + AlCl₃ (anhyd.)
- (B) Benzoyl chloride + Phenylmagnesium bromide (excess)
- (C) Benzoyl chloride + Diphenyl cadmium

Options :

1. ✖

A and B only

2. ✖

B and C only

3. ✔

A and C only

4. ✖

A, B and C

Question Number : 159 Question Id : 105615159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The reagent that can reduce the carboxylic acid group to the corresponding alcohol is

Options :

1. ✘ $\text{NaBH}_4/\text{H}_3\text{O}^+$

2. ✔ $\text{B}_2\text{H}_6/\text{H}_3\text{O}^+$

3. ✘ $\text{Zn} - \text{Hg}/\text{conc. HCl}$

4. ✘ $\text{H}_2, \text{Pd/C}$

Question Number : 160 Question Id : 105615160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The starting material that produce pentanamine by Hoffmann bromamide reaction is

Options :

1. ✘ $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CN}$

2. ✘ $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CONH}_2$

3. ✘ $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NCO}$

4. ✔ $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CONH}_2$