

Correct Marks : 1 Wrong Marks : 0

A message signal of frequency 15 kHz is used to modulate a carrier of frequency ν_c . If the side bands produced are 1515 kHz and 1485 kHz, then ν_c is

Options :

2.0 MHz

1. ✘

1.5 MHz

2. ✔

2.5 MHz

3. ✘

3.0 MHz

4. ✘

Chemistry

Section Id :	1056156
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 :	1056156
Question Shuffling Allowed :	Yes

Question Number : 121 Question Id : 105615281 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 total number of spectral lines observed when electron returns from the 6th shell until the 2nd shell in hydrogen atom is

Options :

15

1. ✔

2. ✖ 10

3. ✖ 8

4. ✖ 2

Question Number : 122 Question Id : 105615282 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 orbital angular momentum of an electron in d orbital is equal to

Options :

1. ✖ 0

2. ✖ $2\sqrt{3} h$

3. ✖ $6 h$

4. ✔ $\sqrt{6} h$

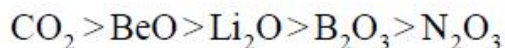
Question Number : 123 Question Id : 105615283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The correct order of decreasing acidic nature of oxides

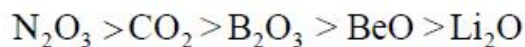
Options :

1. ✖ $\text{Li}_2\text{O} > \text{BeO} > \text{CO}_2 > \text{B}_2\text{O}_3 > \text{N}_2\text{O}_3$

2. ✖ $\text{CO}_2 > \text{N}_2\text{O}_3 > \text{B}_2\text{O}_3 > \text{Li}_2\text{O} > \text{BeO}$



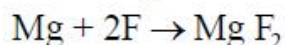
3. ✖



4. ✔

Question Number : 124 Question Id : 105615284 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 change in enthalpy $[\Delta H]$ in kJ mol^{-1} for the reaction is



Given: EA of F = 328 kJ mol^{-1} , IE_1 of Mg = 737 kJ mol^{-1} , IE_2 of Mg = 1451 kJ mol^{-1}

Options :

3064

1. ✖

876

2. ✖

1860

3. ✖

1532

4. ✔

Question Number : 125 Question Id : 105615285 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

Dipole – induced dipole interactions are present between which of the following pairs?

Options :

H_2O and $\text{C}_2\text{H}_5\text{OH}$

1. ✖

Cl_2 and CCl_4

2. ✖

NH_3 and H_2

3. ✔

SiF₄ and BF₃

4. ✖

Question Number : 126 Question Id : 105615286 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 the Lewis formula of O₃, the correct option is

Options :

1. ✖

σ bonds	π bonds	lone pairs of electrons
2	1	3

2. ✖

σ bonds	π bonds	lone pairs of electrons
2	1	4

3. ✖

σ bonds	π bonds	lone pairs of electrons
1	2	4

4. ✔

σ bonds	π bonds	lone pairs of electrons
2	1	6

Question Number : 127 Question Id : 105615287 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 gaseous mixture of 2 moles of A, 3 moles of B, 5 moles of C and 10 moles of D contained in a vessel. Assuming that gases are ideal and partial pressure of C is 1.5 atm, the total pressure is

Options :

1. ✖

15 atm

2. ✖

10 atm

3 atm

3. ✖

6 atm

4. ✔

Question Number : 128 Question Id : 105615288 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 rate constant of a reaction is increased 4 times after addition of catalyst to the reaction mixture at the same temperature of 27 °C. The change in the activation energy of this reaction is

(Take $\ln\left(\frac{1}{4}\right) = -1.386$, $R = 8.314$)

Options :

–15 kJ/mol

1. ✖

–1.5 kJ/mol

2. ✖

–3.45 kJ/mol

3. ✔

–34.5 kJ/mol

4. ✖

Question Number : 129 Question Id : 105615289 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 cube of edge length 1 cm is divided into smaller cubes of uniform size of length 1 nm. Assuming that no voids are present, the ratio of total surface area of all the cubes of 1 nm edge length to the surface area of the initial cube is

Options :

10^9

1. ✖

10^7

2. ✓

10^6

3. ✘

10^5

4. ✘

Question Number : 130 Question Id : 105615290 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

Calculate the number of moles of NaOH required to completely neutralise 100 g of 118% oleum

Options :

2.4

1. ✓

1.2

2. ✘

4.8

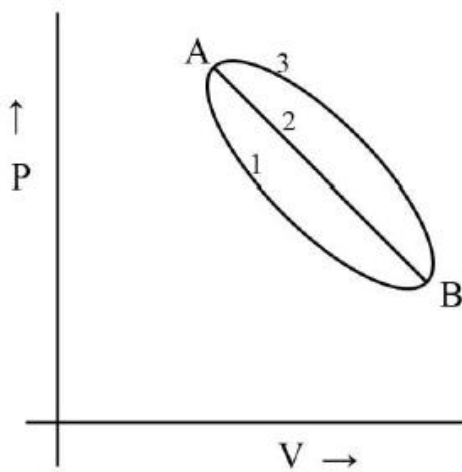
3. ✘

8.4

4. ✘

Question Number : 131 Question Id : 105615291 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 certain mass of a gas was brought from state A to B by following three different paths, namely 1, 2 and 3, respectively. Which of the following relations is correct for the work done?



Options :

1. ✘ $W_1 = W_2 = W_3$

2. ✔ $W_1 < W_2 < W_3$

3. ✘ $W_1 > W_2 > W_3$

4. ✘ $W_1 = W_3 < W_2$

Question Number : 132 Question Id : 105615292 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 the formation of ammonia gas from its constituent elements, the K_P / K_C is

Options :

1. ✘ RT

2. ✔ $\frac{1}{(RT)^2}$

3. ✘ $\frac{1}{\sqrt{RT}}$

4. ✘ 1

Question Number : 133 Question Id : 105615293 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

Match the following

List - I

List - II

- | | |
|--------------------------------|------------------------|
| A) Aq. solution of $AlCl_3$ | I) Basic |
| B) Aq. solution of CH_3COONa | II) Acidic |
| C) Aq. solution of KCl | III) Highly conductive |
| D) Al_2O_3 | IV) Strongly basic |
| | V) Amphoteric |

The correct match is

Options :

1. ✔
- | | | | |
|----|---|-----|---|
| A | B | C | D |
| II | I | III | V |

2. ✘
- | | | | |
|---|-----|----|---|
| A | B | C | D |
| I | III | IV | V |

3. ✘
- | | | | |
|-----|----|---|---|
| A | B | C | D |
| III | II | I | V |

4. ✘
- | | | | |
|----|---|----|---|
| A | B | C | D |
| IV | V | II | I |

Question Number : 134 Question Id : 105615294 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 most effective water softening method is

Options :

Lime – soda process

1. ✘

Permutit process

2. ✘

Ion – exchange process

3. ✔

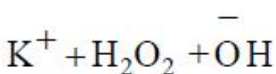
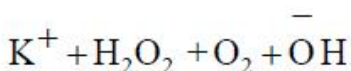
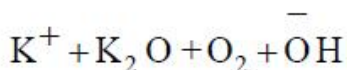
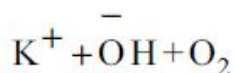
Boiling followed by filtration

4. ✘

Question Number : 135 Question Id : 105615295 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

Potassium superoxide on hydrolysis gives

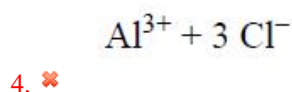
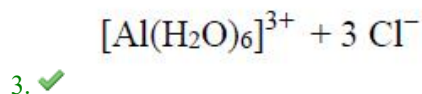
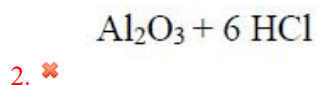
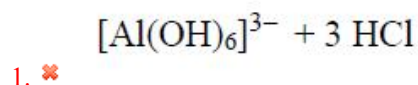
Options :



Question Number : 136 Question Id : 105615296 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

When aluminium chloride is dissolved in water, it gives

Options :



Question Number : 137 Question Id : 105615297 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

Among the following given substances, the one with zero $\Delta_f H^\circ$ is

Options :

1. ✘ Diamond

2. ✔ Graphite

3. ✘ Fullerene

4. ✘ Bituminous coal

Question Number : 138 Question Id : 105615298 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 chiral molecule among the following.

Options :

Isopropyl alcohol

1. ✘

2-Pentanol

2. ✔

1-Bromo-3-butene

3. ✘

Isobutyl alcohol

4. ✘

Question Number : 139 Question Id : 105615299 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 most suitable solvent for Wurtz reaction is

Options :

Dry acetonitrile

1. ✘

Dry dichloromethane

2. ✘

Dry ethanol

3. ✘

Dry ether

4. ✔

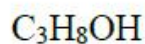
Question Number : 140 Question Id : 105615300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Propyne was subjected to a reaction with HgSO_4 / dil. H_2SO_4 , which resulted in a product P. The product P was heated with $\text{Ba}(\text{OH})_2$ to give the product Q. The molecular formula of the product Q is

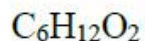
Options :

$\text{C}_3\text{H}_6\text{O}$

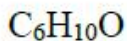
1. ✘



2. ✖



3. ✖



4. ✔

Question Number : 141 Question Id : 105615301 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 option for axial distances and axial angles for hexagonal crystal system is

Options :

$a \neq b \neq c, \alpha \neq \beta \neq \gamma = 90^\circ$

1. ✖

$a = b \neq c, \alpha = \beta = \gamma = 90^\circ$

2. ✖

$a = b \neq c, \alpha = \beta = 90^\circ, \gamma = 120^\circ$

3. ✔

$a \neq b \neq c, \alpha = \beta = \gamma = 90^\circ$

4. ✖

Question Number : 142 Question Id : 105615302 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/are “not correct” for $CH_3OH + CH_3COOH$ mixture solution?

a) $\Delta H_{mix} < 0$

b) Does not obey Raoult's law

c) $\Delta H_{mix} > 0$

d) An example of ideal solution

Options :

d only

1. ✖

a, c only

2. ✖

a, b, c only

3. ✔

c, d only

4. ✖

Question Number : 143 Question Id : 105615303 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

Henry's law is valid for

- A) Ammonia gas dissolution in water
- B) O₂ gas dissolution in unsaturated blood
- C) O₂ dissolution in water
- D) CO₂ dissolution in water

Options :

A and B

1. ✖

B and C

2. ✖

C and D

3. ✔

B and D

4. ✖

Question Number : 144 Question Id : 105615304 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 a current of 1.2 A through a solution of salt of copper for 40 min, 0.96 g of copper was deposited. The equivalent weight of copper in g is

Options :

21.2

1. ✘

31.75

2. ✔

63.5

3. ✘

15.9

4. ✘

Question Number : 145 Question Id : 105615305 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

Half life periods for a reaction at initial concentrations of 0.1 M and 0.01 M are 5 and 50 minutes, respectively. The order of reaction is

Options :

3

1. ✘

2

2. ✔

1

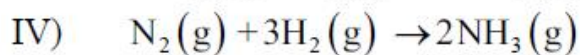
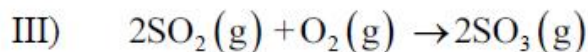
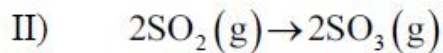
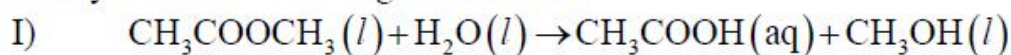
3. ✘

0

4. ✘

Question Number : 146 Question Id : 105615306 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

Catalysts in the following reactions are



Options :

HCl (l), Pt (s), NO (g) and Fe (s)

1. ✓

HCl (l), NO (g), Pt (s) and Fe (s)

2. ✘

HCl (l), Ni (s), NO (g) and Fe (s)

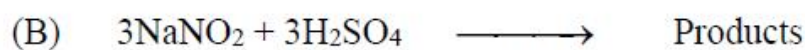
3. ✘

HCl (l), Pt (s), N_2O (g) and Fe (s)

4. ✘

Question Number : 147 Question Id : 105615307 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 total number of paramagnetic gaseous products formed in all the following reactions [A + B + C]



Options :

0

1. ✘

1

2. ✘

2

3. ✘

3

4. ✓

Question Number : 148 Question Id : 105615308 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 main products P and Q of the following unbalanced disproportionation reaction are
 $\text{SeCl}_2 \rightarrow \text{P} + \text{Q}$

Options :

1. ✘

P	Q
SeCl_2	SeCl_3

2. ✘

P	Q
SeCl_4	SeCl_2

3. ✓

P	Q
SeCl_4	Se

4. ✘

P	Q
SeCl_4	Se_2

Question Number : 149 Question Id : 105615309 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 acidity of HClO , HBrO and HIO is

Options :

1. ✘

$\text{HIO} > \text{HBrO} > \text{HClO}$

2. ✘

$\text{HBrO} > \text{HIO} > \text{HClO}$

HClO > HBrO > HIO

3. ✓

HIO > HClO > HBrO

4. ✘

Question Number : 150 Question Id : 105615310 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 linear molecule among the following is

Options :

SnCl₂

1. ✘

PbCl₂

2. ✘

SO₂

3. ✘

XeF₂

4. ✓

Question Number : 151 Question Id : 105615311 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) : In general, transition metals have high melting points.

Reason (R) : More number of electrons from '(n-1)d' and 'ns' are involved in interatomic metallic bonding.

The correct option among the following is

Options :

(A) is true, (R) is true and (R) is the correct explanation for (A)

1. ✓

(A) is true, (R) is true but (R) is not the correct explanation for (A)

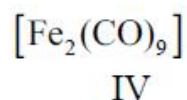
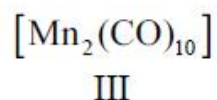
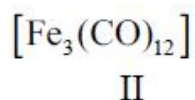
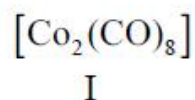
2. ✘

3. ✖ (A) is true but (R) is false

4. ✖ (A) is false but (R) is true

Question Number : 152 Question Id : 105615312 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

Among the given complexes that possess “CO” ligand bridges are



Options :

1. ✖ I, II and III

2. ✖ II, III and IV

3. ✔ I, II and IV

4. ✖ I, III and IV

Question Number : 153 Question Id : 105615313 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 sucrose needed to produce 1 mole of glucose using acid hydrolysis is

Options :

1. ✖ 360 g

2. ✖ 180 g

342 g

3. ✓

171 g

4. ✖

Question Number : 154 Question Id : 105615314 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 dilute aqueous KOH in S_N^1 reaction is



I

II

III

IV

Options :



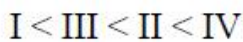
1. ✖



2. ✖



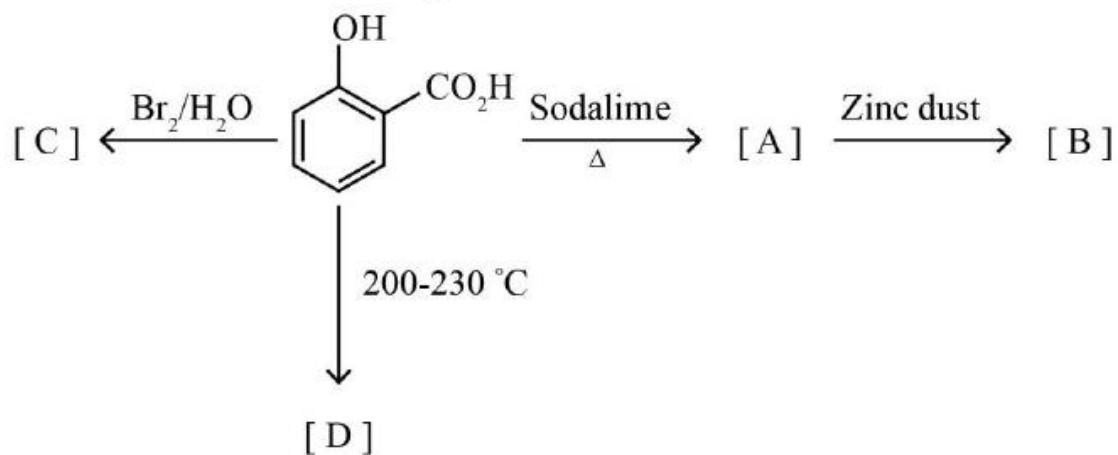
3. ✖



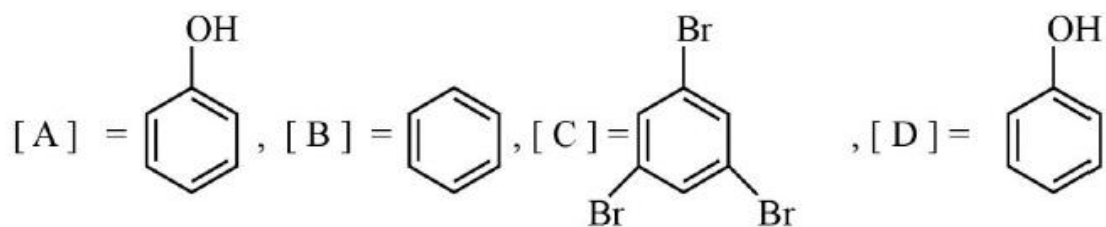
4. ✓

Question Number : 155 Question Id : 105615315 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

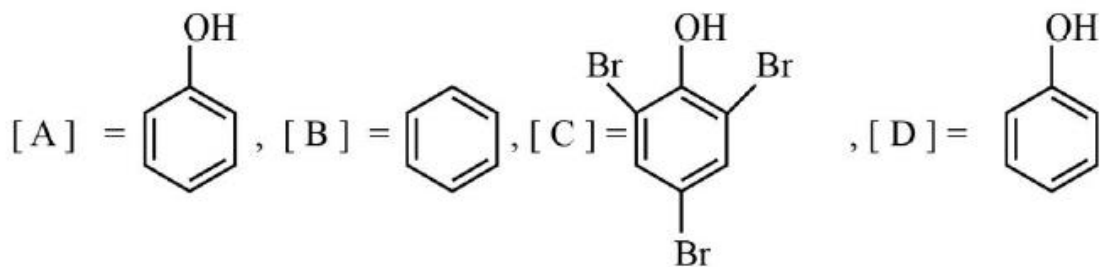
A, B, C, D in the following reactions are



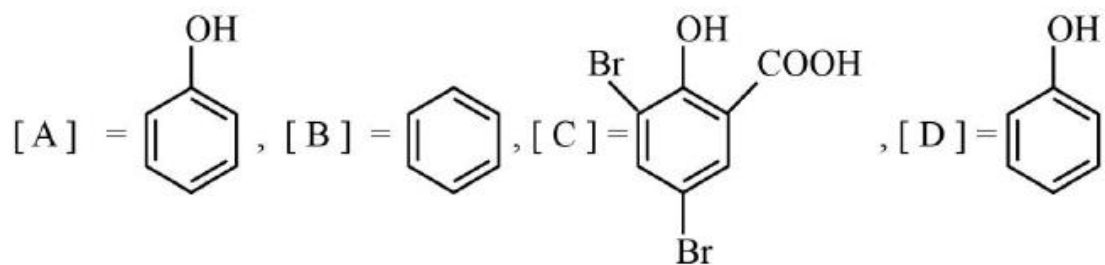
Options :



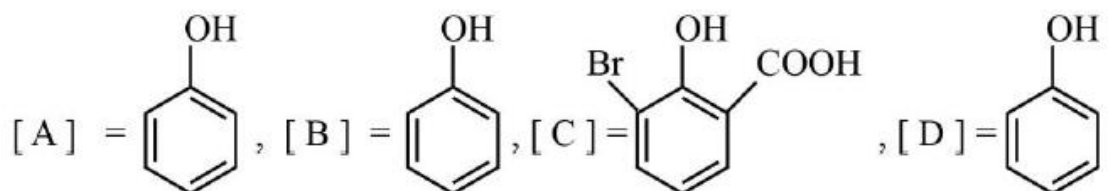
1. ✖



2. ✔



3. ✖



4. ✖

Question Number : 156 Question Id : 105615316 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 statements are correct for phenol?

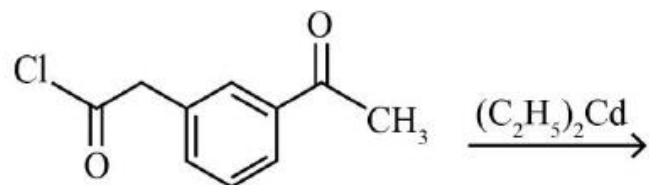
- (A) In general, phenol is more acidic than alcohol.
- (B) Phenol is used in the production of melamine plastic.
- (C) Phenol gives violet colour with neutral ferric chloride solution.
- (D) Phenol when heated with acetyl chloride gives phenetole.

Options :

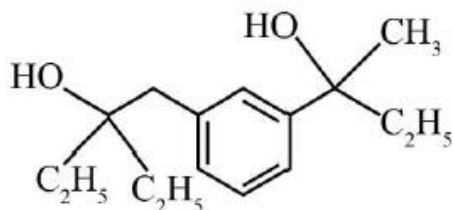
- 1. ✖ C and D
- 2. ✖ A and D
- 3. ✖ B and C
- 4. ✔ A and C

Question Number : 157 Question Id : 105615317 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

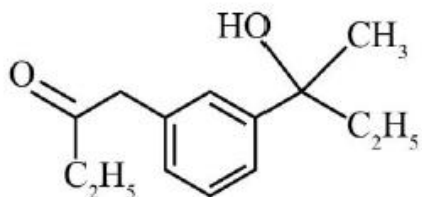
The major product in the following reactions is



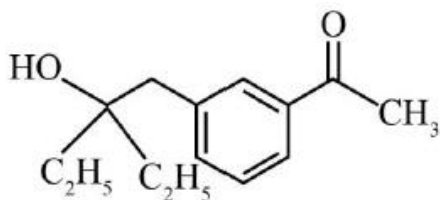
Options :



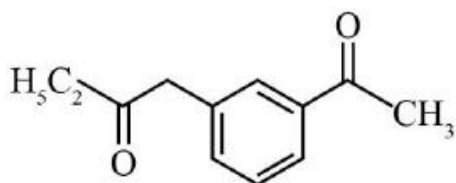
- 1. ✖



2. ✘



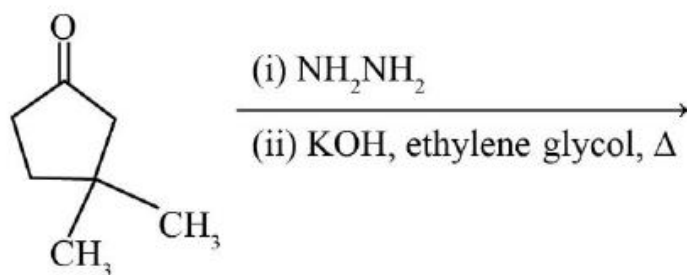
3. ✘



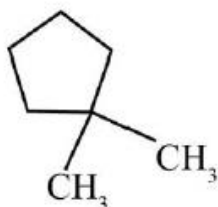
4. ✔

Question Number : 158 Question Id : 105615318 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

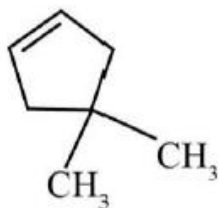
The major product of the following reaction is



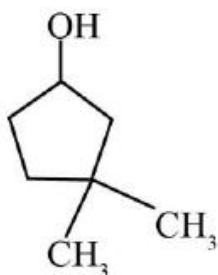
Options :



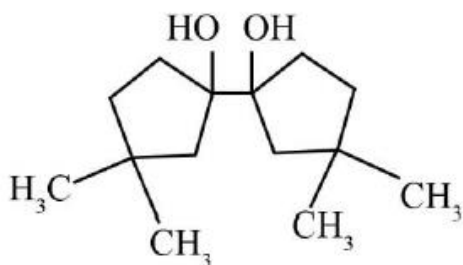
1. ✔



2. ✖



3. ✖



4. ✖

Question Number : 159 Question Id : 105615319 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

n-Propanol on treatment with concentrated HBr gives P. The product P on reaction with KCN gave the product Q. The product Q on heating with aqueous acidic solution, furnished the product R. The product 'R' is

Options :

Propanoic acid

1. ✖

Propanamide

2. ✖

Butanoic acid

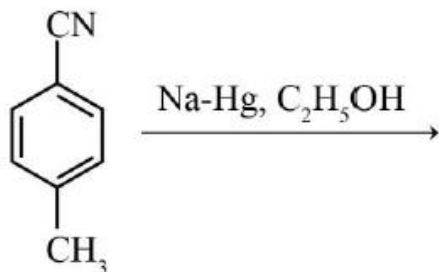
3. ✔

Butanamide

4. ✖

Question Number : 160 Question Id : 105615320 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 of the following synthetic sequence is



Options :

