

CUET UG - 2022
(CANDIDATE RESPONSE SHEET)

Paper/Subject CHEMISTRY
Exam Date 22 Aug 2022
Exam Slot 2

Question ID:1102401
Section Name:CHEMISTRY
Question:

Which of the following acts as an anode in mercury cell ?

- (1) KOH and ZnO paste
- (2) HgO and Carbon paste
- (3) NH_4Cl and ZnCl_2 paste
- (4) Zinc mercury amalgam

- A 1
B 2
C 3
D 4

Answer Given By Candidate:Not Attempted

Question ID:1102402
Section Name:CHEMISTRY
Question:

Match List - I with List - II.

List - I

- (A) Simple vacancy defect
- (B) Simple interstitial defect
- (C) Frankel defect
- (D) Schottky defect

List - II

- (I) Shown by non-ionic solids and increases density of the solid
- (II) Shown by ionic solids and decreases density of the solid
- (III) Shown by non-ionic solids and density of the solid decreases
- (IV) Shown by ionic solids and density of the solid remains the same

Choose the **correct** answer from the options given below :

- (1) (A) - (III), (B) - (I), (C) - (IV), (D) - (II)
- (2) (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
- (3) (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
- (4) (A) - (I), (B) - (III), (C) - (IV), (D) - (II)

- A 1
B 2
C 3
D 4

Answer Given By Candidate:A

Question ID:1102403

Section Name:CHEMISTRY

Question:

In a rhombohedral crystal system :

- (1) $a = b \neq c$ and $\alpha = \beta = \gamma = 90^\circ$
- (2) $a \neq b \neq c$ and $\alpha = \beta = \gamma = 90^\circ$
- (3) $a = b = c$ and $\alpha = \beta = \gamma \neq 90^\circ$
- (4) $a = b \neq c$ and $\alpha = \beta = 90^\circ, \gamma = 120^\circ$

A 1

B 2

C 3

D 4

Answer Given By Candidate:D

Question ID:1102404

Section Name:CHEMISTRY

Question:

Which of the following statements are true for amorphous solids ?

- (A) Isotropic in nature
- (B) True solids
- (C) No definite enthalpy of fusion
- (D) Irregular shape
- (E) Long range order

Choose the **correct** answer from the options given below :

- (1) (B), (D), (E) only
- (2) (A), (B), (C) only
- (3) (A), (C), (D) only
- (4) (C), (D), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate:A

Question ID:1102405

Section Name:CHEMISTRY

Question:

The specific conductance of a 0.1 N KCl solution at 23°C is $0.012 \Omega^{-1}\text{cm}^{-1}$. The resistance of the cell containing the solution at the same temperature was found to be 55Ω . The cell constant will be :

- (1) 0.142 cm^{-1}
- (2) 0.660 cm^{-1}
- (3) 0.918 cm^{-1}
- (4) 1.12 cm^{-1}

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102406**

Section Name: CHEMISTRY

Question:

The e.m.f. of the cell $\text{Ni}/\text{Ni}^{2+}(1\text{ M})\|\text{Au}^{3+}(1\text{ M})/\text{Au}$ ($E^\circ = -0.25\text{ V}$ for Ni^{2+}/Ni and is equal to 1.5 V for Au^{3+}/Au) :

- (1) 1.25 V
- (2) -1.25 V
- (3) 1.75 V
- (4) 2.00 V

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102407**

Section Name: CHEMISTRY

Question:

Which of the following metals can be used as a sacrificial electrode to prevent corrosion of iron ?

- (1) Cu
- (2) Ag
- (3) Sn
- (4) Mg

A 1

B 2

C 3

D 4

Answer Given By Candidate: **A**Question ID: **1102408**

Section Name: CHEMISTRY

Question:

In Arrhenius plot of $\ln k$ vs $\frac{1}{T}$, intercept is equal to :

- (1) $\ln A$
- (2) $-E_a/R$
- (3) $\ln k$
- (4) R

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102409**

Section Name: CHEMISTRY

Question:

Units of rate constant for zero order reaction are :

- (1) S^{-1}
- (2) $\text{mol}^{-1} \text{L S}^{-1}$
- (3) $\text{mol}^{-2} \text{L}^2 \text{S}^{-1}$
- (4) $\text{mol L}^{-1} \text{S}^{-1}$

A 1

B 2

C 3

D 4

Answer Given By Candidate: **C**Question ID: **1102410**

Section Name: CHEMISTRY

Question:

Which one of the following is not applicable to the phenomenon of adsorption ?

- (1) $\Delta G < 0$
- (2) $\Delta H < 0$
- (3) $\Delta H > 0$
- (4) $\Delta S < 0$

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102411**

Section Name: CHEMISTRY

Question:

Which of the following are examples of aerosol ?

- (A) Fog
- (B) Cheese
- (C) Mist
- (D) Cloud
- (E) Foam rubber

Choose the **correct** answer from the options given below :

- (1) (B), (D), (E) only
- (2) (A), (C), (D) only
- (3) (A), (B), (C) only
- (4) (B), (C), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: A

Question ID: 1102412

Section Name: CHEMISTRY

Question:

Which of the following are negatively charged sols ?

(A) $\text{CrO}_3 \cdot x\text{H}_2\text{O}$

(B) Blood

(C) As_2S_3

(D) Starch

(E) Gold

Choose the **correct** answer from the options given below :

(1) (A), (B), (C) only

(2) (B), (C), (E) only

(3) (C), (D), (E) only

(4) (A), (C), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: D

Question ID: 1102413

Section Name: CHEMISTRY

Question:

For coagulation of a positive sol, the flocculating power of anions are in the order of :

(A) SO_4^{2-} (B) PO_4^{3-} (C) $[\text{Fe}(\text{CN})_6]^{4-}$ (D) Cl^-

Choose the **correct** answer from the options given below :

(1) $D > A > B > C$ (2) $B > C > D > A$ (3) $A > B > C > D$ (4) $C > B > A > D$

A 1

B 2

C 3

D 4

Answer Given By Candidate: Not Attempted

Question ID:1102414**Section Name:**CHEMISTRY**Question:**

Which of the following is an ore of copper ?

- (1) Calamine
- (2) Malachite
- (3) Magnetite
- (4) Siderite

A 1**B** 2**C** 3**D** 4Answer Given By Candidate:**A****Question ID:1102415****Section Name:**CHEMISTRY**Question:**

Mond's process is used for refining :

- (1) Ni
- (2) Al
- (3) Fe
- (4) Cu

A 1**B** 2**C** 3**D** 4Answer Given By Candidate:**A****Question ID:1102416****Section Name:**CHEMISTRY**Question:**

Dinitrogen is prepared commercially by :

- (1) Treating ammonium chloride solution with sodium nitrite
- (2) The thermal decomposition of ammonium dichromate
- (3) The liquefaction and fractional distillation of air
- (4) Heating sodium azide

A 1**B** 2**C** 3**D** 4Answer Given By Candidate:**Not Attempted****Question ID:1102417****Section Name:**CHEMISTRY

Question:

Which of the following are acidic oxides ?

- (A) N_2O_3
- (B) P_2O_3
- (C) As_2O_3
- (D) Sb_2O_3
- (E) Bi_2O_3

Choose the **correct** answer from the options given below :

- (1) (A), (B) only
- (2) (A), (B), (C) only
- (3) (C), (D) only
- (4) (C), (D), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: **B**

Question ID:1102418

Section Name:CHEMISTRY

Question:

Which of the following are oxoacids of sulphur ?

- (A) H_2SO_3
- (B) H_2S
- (C) H_2SO_5
- (D) $\text{H}_2\text{S}_2\text{O}_3$
- (E) SO_2

Choose the **correct** answer from the options given below :

- (1) (A), (B), (D) only
- (2) (A), (C), (D) only
- (3) (B), (C), (E) only
- (4) (C), (D), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**

Question ID:1102419

Section Name:CHEMISTRY

Question:

Which of the following reacts with chlorine to give bleaching powder ?

- (1) CaO
- (2) Ca(OH)_2
- (3) CaOCl_2
- (4) CaCl_2

A 1

B 2

C 3

D 4

Answer Given By Candidate: **B**

Question ID: **1102420**

Section Name: CHEMISTRY

Question:

In the following ions, the increasing order of unpaired electrons is :

- (A) Sc^{3+}
- (B) Ti^{3+}
- (C) V^{2+}
- (D) Cr^{2+}
- (E) Mn^{2+}

Choose the **correct** answer from the options given below :

- (1) $A < B < C < D < E$
- (2) $A < C < B < D < E$
- (3) $A < B < D < C < E$
- (4) $A < D < B < C < E$

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102421**

Section Name: CHEMISTRY

Question:

Which of the following has completely filled 4f subshell in +3 oxidation state ?

- (1) La
- (2) Lu
- (3) Gd
- (4) Ac

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102422**

Section Name: CHEMISTRY

Question:

The spin only magnetic moment of V^{2+} in aqueous solution would be :

- (1) 1.73
- (2) 4.90
- (3) 2.84
- (4) 3.87

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102423**

Section Name: CHEMISTRY

Question:

Examples for mono dentate ligands :

- (A) H_2O
- (B) NH_3
- (C) CO
- (D) $C_2O_4^{2-}$
- (E) $H_2N-CH_2CH_2NH_2$

Choose the **correct** answer from the options given below :

- (1) (A), (B), (C) only
- (2) (A), (B), (D) only
- (3) (A), (D), (E) only
- (4) (B), (C), (D) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: **D**Question ID: **1102424**

Section Name: CHEMISTRY

Question:

The complex which has no 'd' electron in the central metal atom, is :

- (1) $[MnO_4]^-$
- (2) $[Co(NH_3)_6]^{3+}$
- (3) $[Fe(CN)_6]^{3-}$
- (4) $[Cr(H_2O)_6]^{3+}$

A 1

- B 2
C 3
D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102425**

Section Name: CHEMISTRY

Question:

Amongst the following the most stable complex is :

- (1) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$
(2) $[\text{Fe}(\text{NH}_3)_6]^{3+}$
(3) $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$
(4) $[\text{FeCl}_6]^{3-}$

- A 1
B 2
C 3
D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102426**

Section Name: CHEMISTRY

Question:

Which one will give Fe^{2+} ions in solution ?

- (1) $[\text{Fe}(\text{CN})_6]^{3-}$
(2) $[\text{FeCl}_6]^{3-}$
(3) $[\text{Fe}(\text{CN})_6]^{4-}$
(4) $\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$

- A 1
B 2
C 3
D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102427**

Section Name: CHEMISTRY

Question:

Match List - I with List - II.

List - I

- (A) S_N1 reaction
 (B) Bromination of alkene
 (C) Alkylidene halide
 (D) Elimination of HX from alkyl halide

List - II

- (I) Saytzeff rule
 (II) Gem-dihalide
 (III) Racemisation
 (IV) Vic-dibromides

Choose the **correct** answer from the options given below :

- (1) (A) - (III), (B) - (IV), (C) - (II), (D) - (I)
 (2) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
 (3) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
 (4) (A) - (I), (B) - (III), (C) - (II), (D) - (IV)

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted****Question ID:**1102428**Section Name:**CHEMISTRY**Question:**

Which of the following is an example of vic-dihalide ?

- (1) Dichloromethane
 (2) 1,2-Dichloroethane
 (3) 1,1-Dichloroethane
 (4) Allyl chloride

A 1

B 2


C 3

D 4

Answer Given By Candidate: **Not Attempted****Question ID:**1102429**Section Name:**CHEMISTRY**Question:**

Which of the following will show optical isomerism ?

- (1) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$
 (2) $\text{CH}_3\text{CH}_2-\underset{\text{Cl}}{\underset{|}{\text{CH}}}-\text{CH}_3$

- (3) 

- (4) $(\text{CH}_3)_3\text{CBr}$

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102430**

Section Name: CHEMISTRY

Question:

Which of the following reaction occurs when alkyl halide reacts with alcoholic of potassium hydroxide ?

- (1) Dehydration
- (2) Dehalogenation
- (3) Dehydrohalogenation
- (4) Dehydrogenation

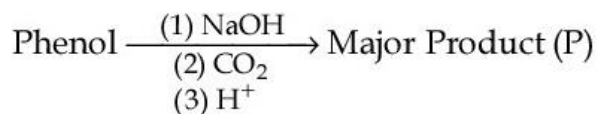
- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102431**

Section Name: CHEMISTRY

Question:



The Product (P) obtained in the above reaction is :

- (1) Salicylaldehyde
- (2) Salicylic acid
- (3) Aspirin
- (4) Benzoquinone

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102432**

Section Name: CHEMISTRY

Question:

The order of basic strength of the following compounds is :

- (A) Methanamine
- (B) N,N-Dimethyl methanamine
- (C) N - Methyl aniline
- (D) N,N-Dimethyl aniline
- (E) Phenyl methanamine

Choose the **correct** answer from the options given below :

- (1) $A > B > E > D > C$
- (2) $A > B > C > E > D$
- (3) $A > C > B > D > E$
- (4) $A > D > B > C > E$

A 1

B 2

C 3

D 4

Answer Given By Candidate: **D**

Question ID:1102433

Section Name:CHEMISTRY

Question:

Which of the following compounds gives 2° amine on reduction ?

- (1) Nitromethane
- (2) Nitroethane
- (3) Methyl cyanide
- (4) Methyl isocyanide

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**

Question ID:1102434

Section Name:CHEMISTRY

Question:

Match List - I with List - II.

List - I	List - II
(A) Globular protein	(I) Thymine
(B) DNA	(II) Polyhydroxy ketone
(C) Fructose	(III) Reducing sugar
(D) Glucose	(IV) Insulin

Choose the **correct** answer from the options given below :

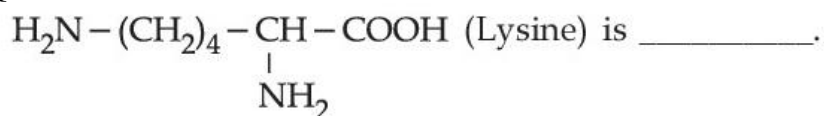
- (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (2) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
- (3) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
- (4) (A) - (III), (B) - (II), (C) - (IV), (D) - (I)

A 1

B 2

C 3

D 4

Answer Given By Candidate: **D****Question ID:1102435****Section Name:**CHEMISTRY**Question:**

- (A) α - amino acid
- (B) Amino acid synthesized in body
- (C) Basic amino acid
- (D) β - amino acid
- (E) Acidic amino acid

Choose the **correct** answer from the options given below :

- (1) (A), (B) only
- (2) (A), (B), (C) only
- (3) (D), (E) only
- (4) (A), (C) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted****Question ID:1102436****Section Name:**CHEMISTRY

Question:

α -helix structure of protein is stabilised by :

- (1) Peptide bonds
- (2) Hydrogen bonds
- (3) Van der Waals forces
- (4) Dipole-dipole interactions

A 1

B 2

C 3

D 4

Answer Given By Candidate: A

Question ID:1102437

Section Name:CHEMISTRY

Question:

Which of the following is a vitamin ?

- (1) Aspartic acid
- (2) Ascorbic acid
- (3) Adipic acid
- (4) Saccharic acid

A 1

B 2

C 3

D 4

Answer Given By Candidate: C

Question ID:1102438

Section Name:CHEMISTRY

Question:

Natural rubber is :

- (1) trans-1,4-polyisoprene
- (2) polychloroprene
- (3) polypropene
- (4) cis-1,4-polyisoprene

A 1

B 2

C 3

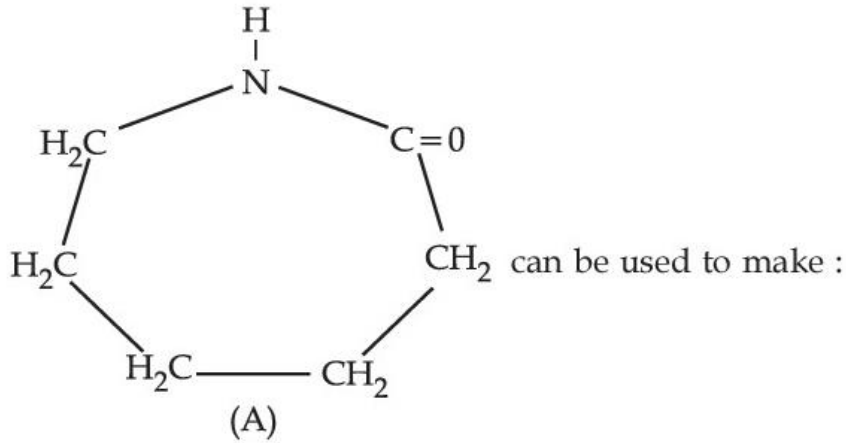
D 4

Answer Given By Candidate: Not Attempted

Question ID:1102439

Section Name:CHEMISTRY

Question:



- (1) Nylon-6
- (2) Nylon 6, 6
- (3) Nylon 2-nylon- 6
- (4) Melamine

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102440**

Section Name: CHEMISTRY

Question:

Which of the following are **not** hypnotic ?

- (A) Veronal
- (B) Luminal
- (C) Cimetsdine
- (D) Seconal
- (E) Ranitidine

Choose the **correct** answer from the options given below :

- (1) (A), (B) only
- (2) (C), (E) only
- (3) (A), (B), (C) only
- (4) (D), (E) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**Question ID: **1102441**

Section Name: CHEMISTRY

Question:

Read the following passage and answer which are based on this passage.

Solution

When ionic compounds are dissolved in water, they dissociate into ions, when there is dissociation of solute into ions, the experimentally determined molar mass is always lower than the true value.

If organic compounds are dissolved in organic solvents, sometimes association of solute molecules take place due to hydrogen bond formation. In this case experimentally determined molar mass is always higher than the true value.

Such a molar mass that is either lower or higher than the expected or normal value is called as abnormal mass.

In 1880 Van't Hoff introduced a factor i , known as Van't Hoff factor to account for the extent of dissociation or association.

$$i = \frac{\text{normal molar mass}}{\text{abnormal molar mass}} = \frac{\text{observed colligative property}}{\text{calculated colligative property}}$$

$$i = \frac{\text{total number of moles of particles after association / dissociation}}{\text{no. of moles of particles before association / dissociation}}$$

i , is added in all formulae used to determine colligative properties.

The Van't Hoff factor for acetic acid in water is :

- (1) less than 1
- (2) equal to 1
- (3) more than 1 but less than 2
- (4) more than 2

A 1

B 2

C 3

D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102442**

Section Name: CHEMISTRY

Question:

Read the following passage and answer which are based on this passage.

Solution

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If organic compounds are dissolved in organic solvents, sometimes association of solute molecules take place due to hydrogen bond formation. In this case experimentally determined molar mass is always higher than the true value.

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$$i = \frac{\text{total number of moles of particles after association / dissociation}}{\text{no. of moles of particles before association / dissociation}}$$

i , is added in all formulae used to determine colligative properties.

A solution of sucrose (molar mass = 342 g/mol) has been prepared by dissolving 68.5 g of sucrose in 1000 g of water. The freezing point of the solution obtained will be :

(K_f for water = 1.86 K kg mol⁻¹)

- (1) -0.372 °C
- (2) -0.52 °C
- (3) +0.372 °C
- (4) -0.57 °C

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID: **1102443**

Section Name: **CHEMISTRY**

Question:

Read the following passage and answer which are based on this passage.

Solution

When ionic compounds are dissolved in water, they dissociate into ions, when there is dissociation of solute into ions, the experimentally determined molar mass is always lower than the true value.

If organic compounds are dissolved in organic solvents, sometimes association of solute molecules take place due to hydrogen bond formation. In this case experimentally determined molar mass is always higher than the true value.

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$$i = \frac{\text{total number of moles of particles after association / dissociation}}{\text{no. of moles of particles before association / dissociation}}$$

i , is added in all formulae used to determine colligative properties.

The molar mass of sodium chloride as determined by osmotic pressure would be (Given : molr mass : Na = 23 and Cl = 35.5 g mol⁻¹) Assume complete dissociation.

- (1) 58.50 g mol⁻¹
- (2) 117.0 g mol⁻¹
- (3) 29.25 g mol⁻¹
- (4) 175.5 g mol⁻¹

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID:1102444

Section Name:CHEMISTRY

Question:

Read the following passage and answer which are based on this passage.

Solution

When ionic compounds are dissolved in water, they dissociate into ions, when there is dissociation of solute into ions, the experimentally determined molar mass is always lower than the true value.

If organic compounds are dissolved in organic solvents, sometimes association of solute molecules take place due to hydrogen bond formation. In this case experimentally determined molar mass is always higher than the true value.

Such a molar mass that is either lower or higher than the expected or normal value is called as abnormal mass.

In 1880 Van't Hoff introduced a factor i , known as Van't Hoff factor to account for the extent of dissociation or association.

$$i = \frac{\text{normal molar mass}}{\text{abnormal molar mass}} = \frac{\text{observed colligative property}}{\text{calculated colligative property}}$$

$$i = \frac{\text{total number of moles of particles after association / dissociation}}{\text{no. of moles of particles before association / dissociation}}$$

i , is added in all formulae used to determine colligative properties.

Which of the following electrolyte would have the same van't Hoff factor as that of potassium ferricyanide ?

- (1) NaCl
- (2) Na₂SO₄
- (3) Al₂(SO₄)₃
- (4) Al(NO₃)₃

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID:1102445

Section Name:CHEMISTRY

Question:

Read the following passage and answer which are based on this passage.

Solution

When ionic compounds are dissolved in water, they dissociate into ions, when there is dissociation of solute into ions, the experimentally determined molar mass is always lower than the true value.

If organic compounds are dissolved in organic solvents, sometimes association of solute molecules take place due to hydrogen bond formation. In this case experimentally determined molar mass is always higher than the true value.

Such a molar mass that is either lower or higher than the expected or normal value is called as abnormal mass.

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$$i = \frac{\text{normal molar mass}}{\text{abnormal molar mass}} = \frac{\text{observed colligative property}}{\text{calculated colligative property}}$$

$$i = \frac{\text{total number of moles of particles after association / dissociation}}{\text{no. of moles of particles before association / dissociation}}$$

i , is added in all formulae used to determine colligative properties.

The van't Hoff factor for 0.1 molal $\text{Ba}(\text{NO}_3)_2$ solution is 2.74. Its degree of dissociation is :

- (1) 0.72
- (2) 0.87
- (3) 0.91
- (4) 1.0

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **Not Attempted**

Question ID:1102446

Section Name:CHEMISTRY

Question:

Aldehydes and Ketones undergo nucleophilic addition reactions. A nucleophile attacks the electrophilic carbon atom of the polar carbonyl group from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. Aldehydes are generally more reactive than ketones in nucleophilic addition reactions due to steric and electronic reasons. Aldehydes and Ketones react with hydrogen cyanide to cyanohydrins. The rate of reaction is increased in the presence of catalyst. Alcohols are produced by the reaction of Grignard reagents with aldehyde and ketones.. Nucleophiles, such as ammonia and its derivatives H_2N-Z add to the carbonyl group of aldehydes ketones. The reaction is reversible and catalysed by acids Here $Z = \text{Alkyl, aryl, OH, NH}_2, C_6H_5NH_2, NH_2CONH_2$ etc.

Identify the incorrect statement(s).

- (A) The carbon atom of the carbonyl group of benzaldehyde is more electrophilic than carbon atom of the carbonyl group present in propanal
- (B) In the nucleophilic addition reactions bond angle changes from 120° to $109^\circ 28'$
- (C) Addition of phenyl hydrazine to the carbonyl group of aldehydes and ketones is reversible
- (D) The polarity of carbonyl group is reduced in benzaldehyde due to resonance

Choose the **correct** answer from the options given below :

- (1) (A), (D) only
- (2) (B), (C) only
- (3) (B), (D) only
- (4) (A) only

A 1

B 2

C 3

D 4

Answer Given By Candidate: A

Question ID: 1102447

Section Name: CHEMISTRY

Question:

Aldehydes and Ketones undergo nucleophilic addition reactions. A nucleophile attacks the electrophilic carbon atom of the polar carbonyl group from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. Aldehydes are generally more reactive than ketones in nucleophilic addition reactions due to steric and electronic reasons. Aldehydes and Ketones react with hydrogen cyanide to cyanohydrins. The rate of reaction is increased in the presence of catalyst. Alcohols are produced by the reaction of Grignard reagents with aldehyde and ketones.. Nucleophiles, such as ammonia and its derivatives H_2N-Z add to the carbonyl group of aldehydes ketones. The reaction is reversible and catalysed by acids Here $Z = \text{Alkyl, aryl, OH, NH}_2, C_6H_5NH_2, NH_2CONH_2$ etc.

Which of the following increases the rate of reactions between aldehydes and ketone with Hydrogen Cyanide ?

- (1) water
- (2) an acid
- (3) a base
- (4) an alcohol

A 1

B 2

C 3

D 4

Answer Given By Candidate:D

Question ID:1102448**Section Name:CHEMISTRY****Question:**

Aldehydes and Ketones undergo nucleophilic addition reactions. A nucleophile attacks the electrophilic carbon atom of the polar carbonyl group from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. Aldehydes are generally more reactive than ketones in nucleophilic addition reactions due to steric and electronic reasons. Aldehydes and Ketones react with hydrogen cyanide to cyanohydrins. The rate of reaction is increased in the presence of catalyst. Alcohols are produced by the reaction of Grignard reagents with aldehyde and ketones.. Nucleophiles, such as ammonia and its derivatives H_2N-Z add to the carbonyl group of aldehydes ketones. The reaction is reversible and catalysed by acids Here $Z = \text{Alkyl, aryl, OH, NH}_2, C_6H_5NH_2, NH_2CONH_2$ etc.

Which of the following would result in the formation of benzyl alcohol ?

- (1) Ethanal and phenyl magnesium halide, H_2O
- (2) Methanol and phenyl magnesium halide, H_2O
- (3) Benzaldehyde and methyl magnesium halide, H_2O
- (4) Metanal and phenylmagnesium halide, H_2O

A 1

B 2

C 3

D 4

Answer Given By Candidate: A

Question ID: 1102449

Section Name: CHEMISTRY

Question:

Aldehydes and Ketones undergo nucleophilic addition reactions. A nucleophile attacks the electrophilic carbon atom of the polar carbonyl group from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. Aldehydes are generally more reactive than ketones in nucleophilic addition reactions due to steric and electronic reasons. Aldehydes and Ketones react with hydrogen cyanide to cyanohydrins. The rate of reaction is increased in the presence of catalyst. Alcohols are produced by the reaction of Grignard reagents with aldehyde and ketones. Nucleophiles, such as ammonia and its derivatives H_2N-Z add to the carbonyl group of aldehydes ketones. The reaction is reversible and catalysed by acids. Here $Z = \text{Alkyl, aryl, OH, NH}_2, C_6H_5NH_2, NH_2CONH_2$ etc.

Which of the following can be used to catalyse the addition of semicarbazide to the carbonyl group of aldehydes and ketones ?

- (1) an acid
- (2) an alkali
- (3) an alcohol
- (4) a organic solvent

A 1

B 2

C 3

D 4

Answer Given By Candidate: Not Attempted

Question ID: 1102450

Section Name: CHEMISTRY

Question:

Aldehydes and Ketones undergo nucleophilic addition reactions. A nucleophile attacks the electrophilic carbon atom of the polar carbonyl group from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. Aldehydes are generally more reactive than ketones in nucleophilic addition reactions due to steric and electronic reasons. Aldehydes and Ketones react with hydrogen cyanide to cyanohydrins. The rate of reaction is increased in the presence of catalyst. Alcohols are produced by the reaction of Grignard reagents with aldehyde and ketones.. Nucleophiles, such as ammonia and its derivatives H_2N-Z add to the carbonyl group of aldehydes ketones. The reaction is reversible and catalysed by acids Here $Z = \text{Alkyl, aryl, OH, NH}_2, C_6H_5NH_2, NH_2CONH_2$ etc.

Which of the following tests is used to confirm the product formed when propanone reacts with Grignard reagent followed by hydrolysis ?

- (1) Tollen's test
- (2) Lucas test
- (3) Fehling's test
- (4) Neutral $FeCl_3$ test

- A 1
- B 2
- C 3
- D 4

Answer Given By Candidate: **A**
