



CHEMISTRY

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 02

Section A

1. Which of the following statement is not correct about dinitrogen.

A. N_2 is a diatomic molecule.

B. Hydrogen bonding is absent in NH_3

C. Nitrogen shows covalency of 3.

D. Nitrogen is chemically inert.

Answer: B



Watch Video Solution

2. Which defect alters the density of a crystal lattices?

A. Frenkel defect

B. Metal deficiency defect

C. Schottky defect

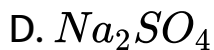
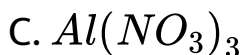
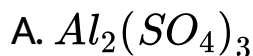
D. Metal excess defect

Answer: C



Watch Video Solution

3. Which of the following salts will have the same value of van't Hoff factor (as that of $K_4[Fe(CN_6)]$)



Answer: B



Watch Video Solution

4. The metal ions impart colour of the flame due to:

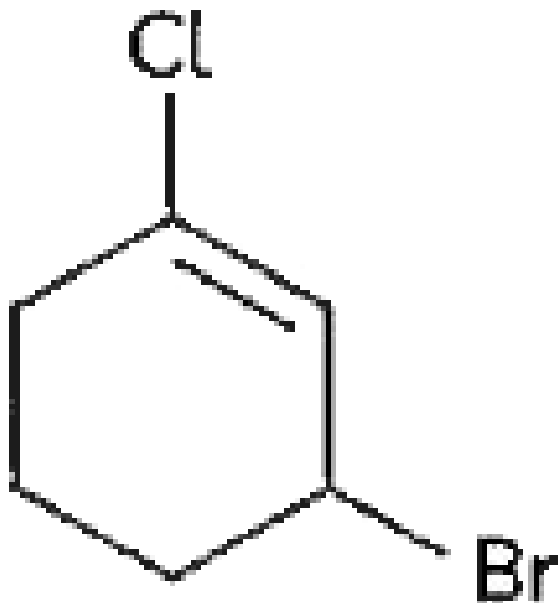
- A. Frenkel defect
- B. Metal excess defect
- C. metal deficiency defect
- D. Schottky defect

Answer: B



Watch Video Solution

5. What is the IUPAC name of the compound:



- A. 6-bromo-2-chlorocyclohexane
- B. 2-bromo-6-chlorocyclohex-1-ene
- C. 3-bromo-1-chlorocyclohexene
- D. 1-bromo-3-chlorocyclohexene

Answer: C



View Text Solution

6. Which of the following statements is not true about glucose?

A. It does not give $NaHSO_3$

B. It is present in furanose form

C. On reaction with Br_2 water it forms gluconic acid

D. It is a reducing sugar

Answer: B



Watch Video Solution

7. Preparation of diethyl ether by dehydration of alcohol is an:

A. SN^1 reaction

B. SN^2 reaction

C. Nucleophilic addition reaction

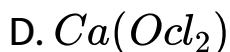
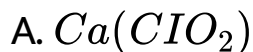
D. Elimination reaction

Answer: B



Watch Video Solution

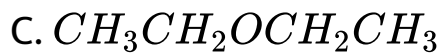
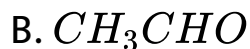
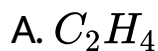
8. When chlorine is passed over dry slaked lime at room temperature, the main reaction product is:



Answer: C



9. Which of the following is not obtained by the reaction between ethanol and concentrated H_2SO_4 under any conditions?



Answer: B



Watch Video Solution

10. Example of a network covalent solid is:

A. SO_2 (solid)

B. H_2O (ice)

C. I_2

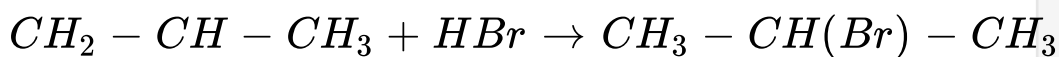
D. Diamond

Answer: D



Watch Video Solution

11. What type of reaction is involved is the reaction



?

- A. Nucleophilic addition
- B. electrophilic substitution
- C. electrophilic addition
- D. free radical addition

Answer: C



Watch Video Solution

12. For an ideal solution which one of the following is not correct:

A. $\Delta V = 0$

B. $\Delta H = \Delta V \neq 0$

C. $\Delta H = 0$

D. It must obey Raoult's law .

Answer: B



Watch Video Solution

13. The lower members of alcohols are soluble in water due to the presence of:

A. intermolecular H-bonding

B. intramolecular H-bonding

C. Vander Waal's forces

D. dipole-dipole interaction

Answer: A



Watch Video Solution

14. In which compound oxygen does not show -2 oxidation state:

A. OH_2

B. CO_2

C. F_2O

D. OCl_2

Answer: C



Watch Video Solution

15. In globular proteins:

A. polypeptide chains are arranged as coil

B. spherical in shape

C. water soluble

D. all of these

Answer: D



Watch Video Solution

16. What will be the major product when 2-bromopentane is treated with alc. KOH:

- A. But-2-ene
- B. Pent-2-ene
- C. Pent-1-ene
- D. 2-methylbut-ene

Answer: B



Watch Video Solution

17. Which of the following statement is correct for chlorobenzene?

- A. less reactive than benzyl chloride
- B. more reactive than dimethyl bromide
- C. more reactive than isopropyl chloride
- D. nearly same 'reactive as that of methyl chloride

Answer: A



Watch Video Solution

18. Which of the following is not involved in $d\pi - d\pi$ overlap:

A. N_2

B. As

C. P_4

D. Bi

Answer: A



Watch Video Solution

19. The value of K_b depends upon the:

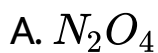
- A. nature of the solvent
- B. nature of the solute
- C. nature of the solution
- D. Both (b) and (c)

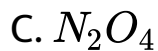
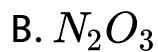
Answer: A



Watch Video Solution

20. Which of the following oxide of nitrogen is the anhydride of nitrous acid?





Answer: A



Watch Video Solution

21. Which is not a reducing sugar?

A. glucose

B. fructose

C. mannose

D. sucrose

Answer: A



Watch Video Solution

22. The halogen that is most easily reduced is

A. fluorine

B. chlorine

C. bromine

D. iodine

Answer: B



[Watch Video Solution](#)

23. Which is maximum soluble in water?

- A. n-butyl alcohol
- B. Isobutyl alcohol
- C. ter-butyl alcohol
- D. Sec-butyl alcohol

Answer: D



[Watch Video Solution](#)

24. Oxidation number of oxygen in H_2O_2 is:

A. -1

B. $+1$

C. -2

D. $+2$

Answer: A



Watch Video Solution

25. The system that forms maximum boiling azeotrope:

A. 2% KCl solution in water

B. 90% ethanol + 10% water

C. 68% HNO_3 + 32% water

D. 33% HNO_3 + 67% water

Answer: C



Watch Video Solution

Section B

1. Which of the following colligative property can be determined at room temperature :

- A. Elevation in boiling point
- B. depression in freezing point
- C. osmotic pressure
- D. both (a) and (b)

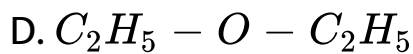
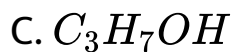
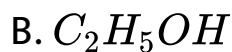
Answer: C



Watch Video Solution

2. Which compound gives iodoforms by reactions between I_2 and $NaOH$?

A. CH_3OH

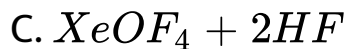
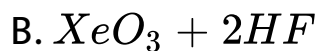
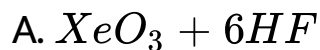


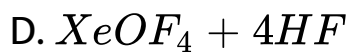
Answer: C



Watch Video Solution

3. On complete hydrolysis XeF_6 gives:





Answer: C



Watch Video Solution

4. The reagent used to distinguish a reducing monosaccharide from a reducing disaccharide is:

A. Benedict's reagent

B. Barfoed's reagent

C. Fehling reagent

D. Both (a) and (c)

Answer: C



Watch Video Solution

5. Which of the following reagents is used to separate benzoic acid from phenol?

A. Dil. HCl

B. Dil. H_2SO_4

C. 5% aq. NaOH

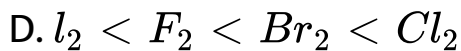
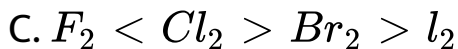
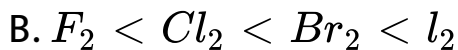
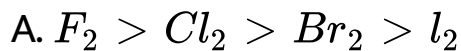
D. 5% aq. $NaHCO_3$

Answer: B



Watch Video Solution

6. The correct order of decreasing oxidising power is:

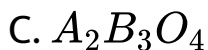
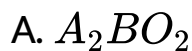


Answer: A



Watch Video Solution

7. Structure of a mixed oxide is cubic closed - packed (ccp) .The cubic unit cell of mixed oxide is composed of oxide ions .One fourth of the tetrahedral voids are occupied by divalent metal A and the octahedral voids are occupied by a monovalent metal B .The formula of the oxide is



Answer: B



Watch Video Solution

8. The reaction of chlorobezene with NaOH at. 626 K gives 'X' and in presence of HNO_3 it gives 'Y'. The 'X' and 'Y' are:

- A. X-Phenol, Y-p-nitrophenol
- B. X-benzyl chloride, Y-benzyl alcohol
- C. X-phenol, Y-o-nitrophenol
- D. X-o-nitrophenol, Y-p-nitrophenol

Answer: D



9. In ammonia the nitrogen atom ishybridised and it is expected to have a shape but actual shape is.....

A. Sp^3 , pyramidal, tetrahedral

B. Sp^2 , tetrahedral, pyramidal

C. Sp^2 , tetrahedral pyramidal

D. Sp^3 tetrahedral, pyramidal

Answer: A



Watch Video Solution

10. 1 kg of water contains 4g of NaOH. The concentration of the solution is:

A. decinormal

B. about 0.1 mole

C. 0.1 molal

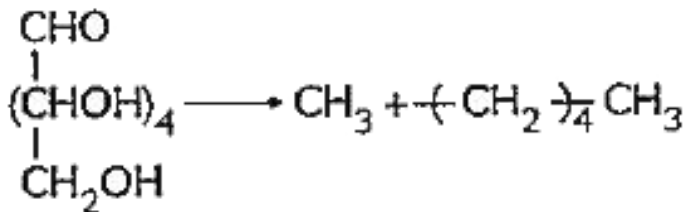
D. 0.1 molar

Answer: C



Watch Video Solution

11. Name the reagent and condition required for carrying out of the following reaction:



A. HF, Δ

B. HCl, Δ

C. HBr, Δ

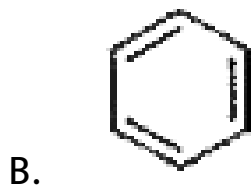
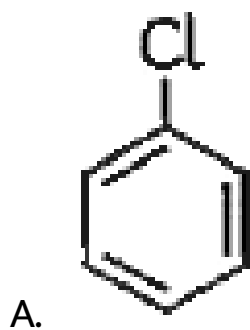
D. HI, Δ

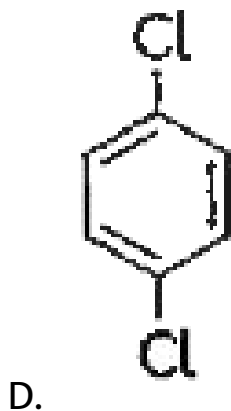
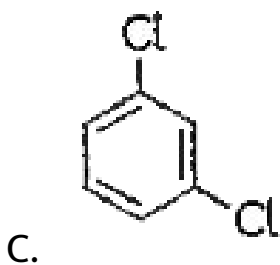
Answer: D



[View Text Solution](#)

12. The main product of the following chemical reaction is





Answer: A



[View Text Solution](#)

13. In orthorhombic , the value of a, b and c are respectively 4.2\AA , 8.6\AA and 8.3\AA .Given the

molecular mass of the solur is 155gmmol^{-1} and that of density is $3.3\text{gm} /$ the number of formula unit per unit cell is

A. 6

B. 3

C. 4

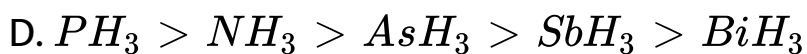
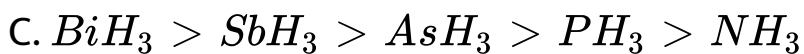
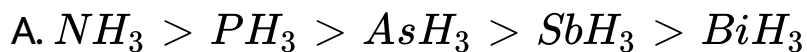
D. 2

Answer: C



Watch Video Solution

14. The correct sequence of decrease in the basic strength of the following hydrides is:

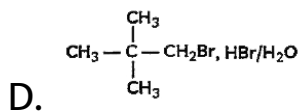
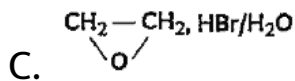
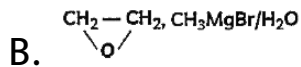
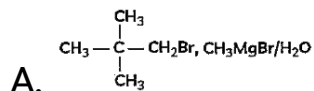


Answer: A



Watch Video Solution

15. Name the reactant and reagent used to obtain n-propyl alcohol:



Answer: B



Watch Video Solution

16. When 3-ethylpent-2-ene reacted with bromine water the major product as (IUPAC name):

- A. 3-ethyl pentan-3-ol
- B. 3-ethyl pentan-3bromo-ol
- C. 2-Bromo-3-ethylpentan-3-ol
- D. 2-ethyl pentan-3-ol

Answer: C



Watch Video Solution

17. Which of the following statement is not correct about group-16?

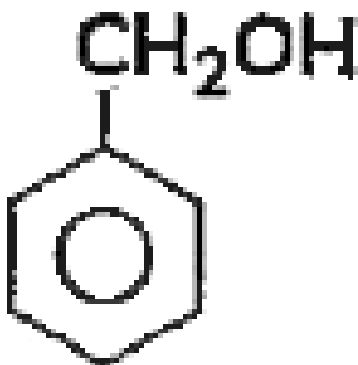
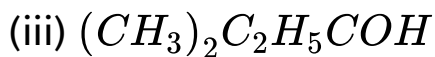
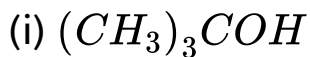
- A. O_2 is a diatomic molecule
- B. Hydrogen bonding is present in H_2O
- C. Sulphur shows covalency of 3
- D. All elements react with halogens.

Answer: C



Watch Video Solution

18. Identify the tertiary alcohols from the given set:



(iv)

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i) , (ii) and (iv)

Answer: C



View Text Solution

19. What product is formed when methyl chloride is treated with KCN?

- A. Acetic anhydride
- B. Aceto cyanide
- C. Aceto nitrile
- D. Methyl iso cyanide

Answer: C



Watch Video Solution

20. Assertion (A): Chlorine water has both oxidising as well as bleaching properties.

Reason (R): Chlorine reacts with water to evolve nascent oxygen.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A



Watch Video Solution

21. Statement I: Molecules that are non-superimposable on their mirror images are chiral.

Statement II: All chiral molecules have chiral centres.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C



Watch Video Solution

22. Assertion (A): The solubility of HCl in water does not follow Henry's law.

Reason (R): Henry's law is not applicable to polar substances.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C



Watch Video Solution

23. Assertion (A): Nitrogen has diamagnetic in nature.

Reason (R): Nitrogen has chemically active element.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C



Watch Video Solution

24. Assertion (A): The boiling point of 0.1 M solution is less than that of 0.1 M KCl solution.

Reason (R): Elevation of boiling point is directly proportional to the number of species present in the solution.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A



Watch Video Solution

1. Match the following

I	II
(i) Keto-hexose	(A) Zwitter ion
(ii) Proteins	(B) Phosphate group
(iii) Alanine	(C) Molish's test
(iv) Nucleic acid	(D) Fructose
(v) Urea	

Which of the following is best matched ?

- A. (i) -(D) , (ii) -(C) , (iii) - (A) , (iv) - (B)
- B. (i) - (D) , (ii) -(C) , (V) -(A) , (iv) - (B)
- C. (i) - (B) , (ii) -(C) , (iii) - (A) , (iv) - (B)
- D. (i) -(B) , (ii) - (C) , (V) -(A) , (iv) - (B)

Answer: A



View Text Solution

2. Which of the following analogies is correct :

A. Ne- sodium vapour lamp :: Ar - Electric lamps.

B. XeF_4 - Square planar :: BrF_5 - Square pyramidal.

C. O_3 - Oxidising agent :: N_2 weak oxidising agent

D. O_2 - $P\pi - P\pi$ bond :: N_2 - Ionic bond .

Answer: A



3. Complete the following analogy :

Absence of plane of symmetry (A) : : Configuration
asymmetric carbon atom (B) :

- A. (A) Chirality (B) Racemisation .
- B. (A) Achirality (B) Autorecemisation
- C. (A) Achirality (B) Autorecemisation
- D. (A) Chirality (B) Inverison .

Answer: D

4. Read the passage and answer the following questions.

Crystalline substances can be described by the types of particles in them and the types of chemical bonding that takes place between the particles. There are four types of crystals: (1) ionic, (2) metallic, (3) covalent network, and (4) molecular.

1. Ionic crystals - The ionic crystal structure consists of alternating positively-charged cations and negatively-charged anions. Metallic crystals consist of metal cations surrounded by a "sea" of mobile valence electrons. These electrons, also referred to as delocalized electrons. A covalent network crystal consists of atoms at the lattice points of the crystal, with each atom

being covalently bonded to its nearest neighbor atoms. Molecular crystals typically consist of molecules at the lattice points of the crystal, held together by relatively weak intermolecular forces.

The table given below gives the axial distances and axial angles of crystal habits.

System	Axial distance	Axial angles
Cubic	$a = b = c$	$\alpha = \beta = \gamma = 90^\circ$
Tetragonal	$a = b \neq c$	$\alpha = \beta = \gamma = 90^\circ$
Hexagonal	$a = b \neq c$	$\alpha = \beta = 90^\circ \gamma = 120^\circ$
Monoclinic	$a \neq b \neq c$	$\alpha = \gamma = 90^\circ \beta \neq 90^\circ$

A cubic cell is made up of two atoms A and B atoms A are present at the corners and B at the centre of the body. The formula of the unit cell:

A. AB

B. A_2B

C. AB_2

D. A_2B_2

Answer: A



View Text Solution

5. Read the passage and answer the following questions.

Crystalline substances can be described by the types of particles in them and the types of chemical bonding that takes place between the particles. There are four types of crystals: (1) ionic, (2) metallic, (3)

covalent network, and (4) molecular. 1. Ionic crystals -

The ionic crystal structure consists of alternating positively-charged cations and negatively-charged anions. Metallic crystals consist of metal cations surrounded by a "sea" of mobile valence electrons.

These electrons, also referred to as delocalized electrons. A covalent network crystal consists of atoms at the lattice points of the crystal, with each atom being covalently bonded to its nearest neighbor atoms. Molecular crystals typically consist of molecules at the lattice points of the crystal, held together by relatively weak intermolecular forces.

The table given below gives the axial distances and axial angles of crystal habits.

System	Axial distances	Axial angles
Cubic	$a = b = c$	$\alpha = \beta = \gamma = 90^\circ$
Tetragonal	$a = b \neq c$	$\alpha = \beta = \gamma = 90^\circ$
Hexagonal	$a = b \neq c$	$\alpha = \beta = 90^\circ \gamma = 120^\circ$
Monoclinic	$a \neq b \neq c$	$\alpha = \beta = \gamma = 90^\circ \beta \neq 90^\circ$

The example of Hexagonal system is

- A. Graphite
- B. ZnO
- C. (a) & (b) both
- D. ZnS

Answer: C



[View Text Solution](#)

6. Read the passage and answer the following questions.

Crystalline substances can be described by the types of particles in them and the types of chemical bonding that takes place between the particles. There are four types of crystals: (1) ionic, (2) metallic, (3) covalent network, and (4) molecular. 1. Ionic crystals -

The ionic crystal structure consists of alternating positively-charged cations and negatively-charged anions. Metallic crystals consist of metal cations surrounded by a "sea" of mobile valence electrons. These electrons, also referred to as delocalized electrons. A covalent network crystal consists of atoms at the lattice points of the crystal, with each atom

being covalently bonded to its nearest neighbor atoms. Molecular crystals typically consist of molecules at the lattice points of the crystal, held together by relatively weak intermolecular forces.

The table given below gives the axial distances and axial angles of crystal habits.

System	Axial distance	Axial angles
Cubic	$a = b = c$	$\alpha = \beta = \gamma = 90^\circ$
Tetragonal	$a = b \neq c$	$\alpha = \beta = \gamma = 90^\circ$
Hexagonal	$a = b \neq c$	$\alpha = \beta = 90^\circ \gamma = 120^\circ$
Monoclinic	$a \neq b \neq c$	$\alpha = \gamma = 90^\circ \beta \neq 90^\circ$

How many unit cells are present in a cubic shaped ideal crystal of NaCl of mass 1.0 g?

A. 5.14×10^{21}

B. 2.57×10^{21}

C. 1.28×10^{21}

D. 1.71×10^{21}

Answer: B



View Text Solution