# CHEMISTRY

# BOOKS - EDUCART PUBLICATION

# SAMPLE PAPER 8 SOLVED (TERM-1)

## Section A

**1.** The relation between pressure and solubility is stated by:

A. Raoult's law

B. Dalton's law

C. Henry's lay

D. Van't Hoff law

**Answer:**

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**2.** Which of the following bond is the strongest?

A. $F - F$

B. $CI - CI$

C. $Br - Br$

D. $I - I$

**Answer:**

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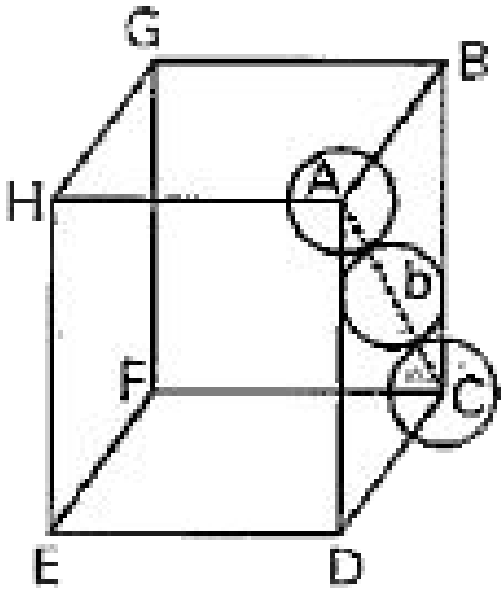
**3.** The packing efficiency of unit cell which is represented in the figure is?




A. 74 %

B. 68 %

C. 38 %

D. 52 %

**Answer:**

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**4.** Insulin has:

A. primary structure

B. secondary structure

C. tertiary structure

D. quaternary structure

**Answer:**

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**5.** Which crystal system of a compound with unit cell has dimension a = 0.387, b = 0.387 and c = 0.504 nm and $a = \beta = 110(\circ)$ and $\gamma = 120^\circ$?

A. cubic

B. hexagonal

C. orthorhomic

D. rhombohedral

**Answer:**

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**6.** Among following which will undergo SN1 mechanism at faster rate?

A. $CH_3 - \underset{\underset{Cl}{|}}{CH} - CH_3$

B. $CH_3Cl$

C. $CH_3 - \underset{\underset{Cl}{|}}{\overset{\overset{CH_2}{|}}{C}} - CH_3$

D. $CH_2 - \underset{\underset{Cl}{|}}{CH} - CH_2 - CH_2$

**Answer:**

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**7.** Name the defect formed when electrons are trapped into the crystal in anion vacancy:

A. Schottky defect

B. Stoichiometric defect

C. Frenkel defect

D. F-centres

**Answer:**

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**8.** The reaction between phenol and $Br_2$ in $CS_2$ at low temperature to form:

A. 2,4,6-tribromophenol

B. p-bromophenol

C. m-bromophenol

D. cyclohexanone

**Answer:**

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**9.** The least acidic among HCLO, HBrO, HIO is:

A. HlO

B. HBrO

C. HClO

D. HCl

**Answer:**

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**10.** Which the following is the most weakest acid?

A. p-cresol

B. m-cresol

C. Phenol

D. o-cresol

**Answer:**

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**11.** In globular proteins:

A. polypeptide chains are arranged as coil

B. spherical in shape

C. water soluble

D. all of these

**Answer:**

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**12.** The halides of alkali metals are less ionic. Which of the following is least ionic:

A. MF

B. MCL

C. MBT

D. MI

**Answer:**

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**13.** Which following product is obtained by the decarboxylation of sodium salt of salicylic acid with sodalime is:

A. Phenol

B. Toluene

C. Benzene

D. Benzolc acid

**Answer:**

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**14.** The compressed air used by sea divers comprises:

A. $He, N_2, O_2$

B. $N_2He$

C. $O_2, N_2$

D. $He, O_2$

**Answer:**

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**15.** 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:**

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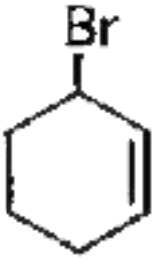
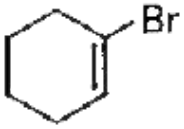
**16.** Among the given compounds which of the following is vinylic halides:

A. $CH_3CH = CHCH_2Br$

B. 


C. 

D. $CH_3\underset{\underset{Br}{|}}{C}HCH = CH_2$

**Answer:**

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**17.** The structure of $XeOF_2$ is:

A. distorted octahedral

B. T-shaped

C. pyramidal

D. tetrahedral

**Answer:**

View Text Solution

**18.** 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. Boiling and freezing point

**Answer:**

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**19.** Ionisation enthalpy of group 15 elements is greater than that of group 14 elements due to:

A. the presence of completely filled p orbitals.

B. the presence of half-filled p orbitals.

C. the presence of half-filled d arbitals.

D. the presence of empty p orbitals.

**Answer:**

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**20.** In nucleic acid the sequence is?

A. Phosphate, base, sugar

B. ugar, base, phosphate

C. Base, Sugar, phosphate

D. Base, phosphate, sugar

**Answer:**

View Text Solution

**21.** Which of the following hydrides is the most acidic?

A. $H_2Te$

B. $H_2Se$

C. $H_2O$

D. $H_2S$

**Answer:**

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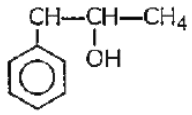
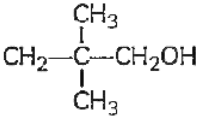
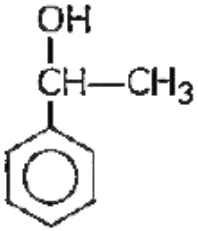
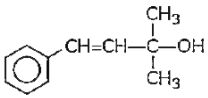
**22.** Which among the flowing compound(s) is are primary alcohol ?

A. 

B. 

C. 

D. 

**Answer:**

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**23.** Which of the following oxides of Nitrogen contains N-O-N bond?

A. Dinitrogen Oxide

B. Nitrogen Monoxide

C. Dinitrogen Pentaoxide

D. Dinitrogen trioxide

**Answer:**

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**24.** Which one of the following pairs is the essential component of our food?

A. Proteins and nucleic acids

B. Proteins and lipids

C. Nucleic acids and lipids

D. Proteins and carbohydrate

**Answer:**

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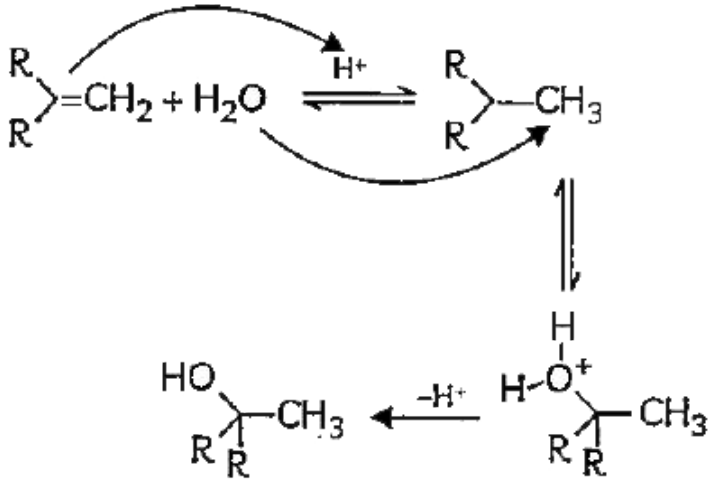
**25.** Alkenes react with water in the presence of acid as catalyst to form alcohols. In case of unsymmetrical alkenes, the addition reaction takes place inaccordance with Markovnikov's rule. The mechanism is as follows:




Which will be the correct order of reactivity of the alkenes,

$(l)(CH_3)_2C = CH_2,$

(II) $Ch_3CH = CH_2$,

(III) $CH_2 = CH_2$,

when subjected to acid catalysed hydration is:

A. $(I) > (III) > (II)$

B. $(III) > (II) > (I)$

C. $(II) > (I) > (III)$

D. $(I) > (II) > (III)$

**Answer:**

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## Section B

**1.** The reagent used to convert glucose into saccharic acid is:

A. Ammonium hydroxide

B. Alkaline solution of iondine

C. $Br_2 / H_2O$

D. Nitric acid

**Answer:**

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**2.** In this reaction primary alcoholic group is oxidised to carboxyl group. Among the following, which one is a wrong statement?

A. $PH_5$ and $BlCl_5$ do not exist

B. $p\pi - d\pi$ bonds are present in $SO_2$

C. $SeF_4$ and $CH_4$ have same shapes

D. $I_3^+$ has bent geometry

**Answer:**

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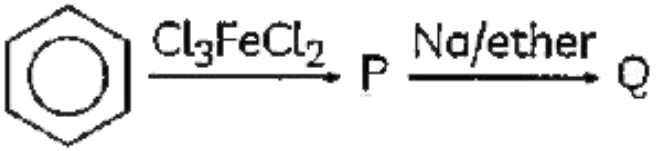
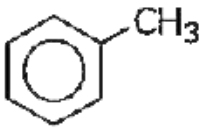
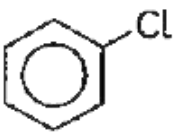
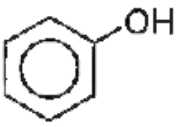
**3.** Identify the end product (P) In the following sequence of reactions:




A. 


B. 


C. 

D. 


**Answer:**

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**4.** The measured freezing point depression of a non-volatile solute in aqueous solution is $0.20^{\circ}C$. The elevation in boiting point of the same solution will be [$K_f$ = 1.86 Km, $k_b$ = 0.52 K/m]

A. $0.0186$

B. $0.056$

C. $0.052$

D. $5.2$

**Answer:**

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**5.** The freezing point of solution containing 60 g of glucose (Molar mass 180 g/mol) in 250 g of water ($K_f$-for $H_2O$ = 1.86 K kg $mol^{-1}$) is:

A. $271.67K$

B. $270.67K$

C. $274K$

D. 270K

**Answer:**

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**6.** The mixed oxide has a Cubic Closed Packed (CCP) structure. The cubic unit cell of mixed oxide is composed to oxide ions on corners. One fourth of tetrahedral voids are occupied by divalent metal 'A' and octahedral voids are occupied by monovalent metal 'B' The formula of the oxide is:

A. $A_2BO_2$

B. $ABO_2$

C. $A_2B_3O_4$

D. $AB_2O_2$

**Answer:**

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**7.** The total number of electron pairs of some xenon complexes are as follows:

| S. No. | Complex | Number of electron pairs |
|---|---|---|
| 1 | $XeF_2$ | 5 |
| 2 | $XeF_6$ | 7 |
| 3 | $XeF_4$ | 6 |

Which complex is linear in shape:

A. $XeF_6$

B. $XeF_2$

C. $XeF_4$

D. Both $XeF_2$ and $XeF_6$

**Answer:**

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**8.** Which of the following is correct regarding halogens?

A. Halogens are highly electropositive.

B. They have very high negative value of electron gain enthalpy.

C. They get easily oxidised to their uniposi tive ions.

D. They act as strong reducing agents.

**Answer:**

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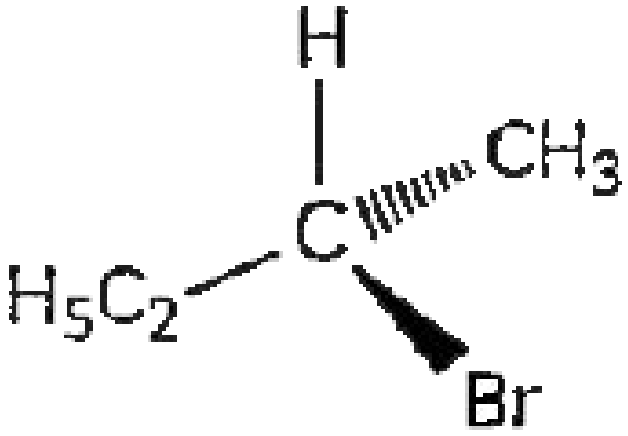
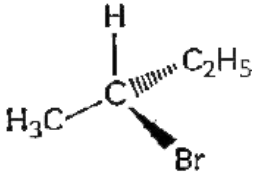
**9.** The enantiomeric form of molecule (A) is:




A.

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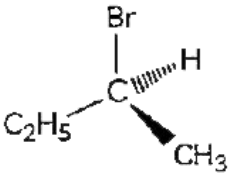
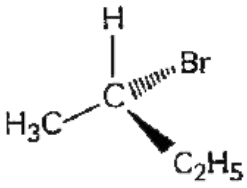
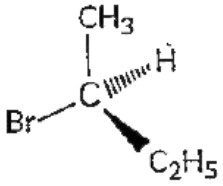


C. 


D. 


**Answer:**

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

A. It does not given $NaHSO_3$

B. It is present in furanose form

C. On reaction with $Br_2$ water it forms glu conic acid

D. It is a reducing sugar

**Answer:**

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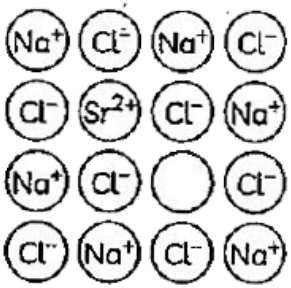
**11.** Which defect in solids are illustrated in the figure A and B below?




(A)

(B)

| (A) | (B) |
|---|---|
| (a) impurity | F-centre |
| (b) Schottky defect | impurity defect |
| (c) F-centre | impurity defect |
| (d) Schottky defect | Frenkel defect |

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**12.** How many number of tetrahedral voids in the face centred unit cell are present?

A. 12

B. 8

C. 10

D. 6

**Answer:**

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**13.** What happens when. 1-Propanol in the presence of $HBF_4$ reacts with diazomethane?

A. di-n-propyl ether

B. dimethyl ether

C. 1-methoxypropane

D. 2 methoxypropane

**Answer:**

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**14.** Which is not hydrolysed by water:

A. $NCl_3$

B. $NF_3$

C. $PCl_3$

D. $BiCl_3$

**Answer:**

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**15.** Except oxygen, all the elements of group 16 exist as ..... solids.

A. diatomic

B. triatomic

C. octaatomic

D. tetraatomic

**Answer:**

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**16.** The below reaction takes place in accordance with

$$CH_3CH = CH_2 + H_2O \overset{H^+}{\Longleftrightarrow} CH_2 - \underset{\underset{OH^-}{|}}{CH} - CH_3$$

A. Anti-markownikoff's addition

B. Saytezeff rule

C. Markownikoff's rule

D. Hotfmann elimination rule

**Answer:**

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**17.** Identify the chloronated product x formed when cyclo pentane reacts with chlorine is presence of sunlight.

A. 1-pentene

B. 2-chloropentane

C. 1-chlorocyclopentane

D. 2-methyl butene

**Answer:**

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**18.** Identify A, B and C in the following reaction sequence compounds:

$$CH_3CH_2OH \xrightarrow{SoCl_2} A \xrightarrow[\text{dryocetone}]{\rightarrow kI} B \xrightarrow{AqCN} C$$

A. $CH_3CH_2Cl, CH_3CH_3, CH_3CH_2NH$

B. $CH_3CH_2Cl, CH_2CH_2l, CH_3CH_2NC$

C. $CH_3CH_2Cl, CH_2CH_2l, CH_2CH_2NC$

D. $CH_3CH_2Cl, CH_3CH_3l, CH_3CH_2CN$

**Answer:**

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**19.** Assertion (A): ZnS solid shows Schottky defect.

Reason (R): $Zn^{2+}$ and $S^{2-}$ ions have difference in size.

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:**

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**20.** Assertion (A): $ClF_3$ exist but $FCl_3$ does not exist.

Reason (R): ‘p does not have d-orbitals whereas 'Cl' has d-orbitals.

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:**

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**21.** Assertion (A): SFE is a well known compound while she does not exist.

Reason (R): The reactivity of halogens increases as the atomic number increases.

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:**

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**22.** Assertion (A): Total number of octahedral voids present in unit cell of for centered close packing including the one that is present at the body centre is four,

Reason (R): Besides the body centre there is one octahedral void present at the centre of each of the six faces of the unit cell and each of which is shared between two adjacent unit cell.

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:**

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**23.** Assertion (A): $NCl_5$ is less stable than PCls

Reason (R): P does not contain d orbitals

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:**

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## Section C

**1.** Match the following:

| Column I | Column II |
|---|---|
| (I) $XeF_2$ | (A) Octahedral |
| (II) $PCl_5$ | (B) tetrahedral shape |
| (III) $NH_3$ | (C) has 3 lone pairs |
| (IV) $ICl_5$ | (D) trigonal bipyramidal |

Which of the following is the best matched option ?

A.

$(l) - (A), (ll) - (B), (lll) - (D), (lV) - (C)$

B.

$(l) - (B), (ll) - (A), (lll) - (C), (lV) - (D)$

C.

$(l) - (D), (ll) - (C), (lll) - (A), (lV) - (B)$

D.

$(l) - (C), (ll) - (D), (lll) - (B), (lV) - (A)$

**Answer:**

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**2.** Which of the following analogies is correct:

A. Nucleoside :Sugar and base = DNA: fingerprinting

B. Fructose :Aldohexose Sucrose monosaccharide

C. Maltose: polysaccharide - Glucose : Non reducing sugar

D. Carbohydrate : amino acid :: Lactose : fruit sugar

**Answer:**

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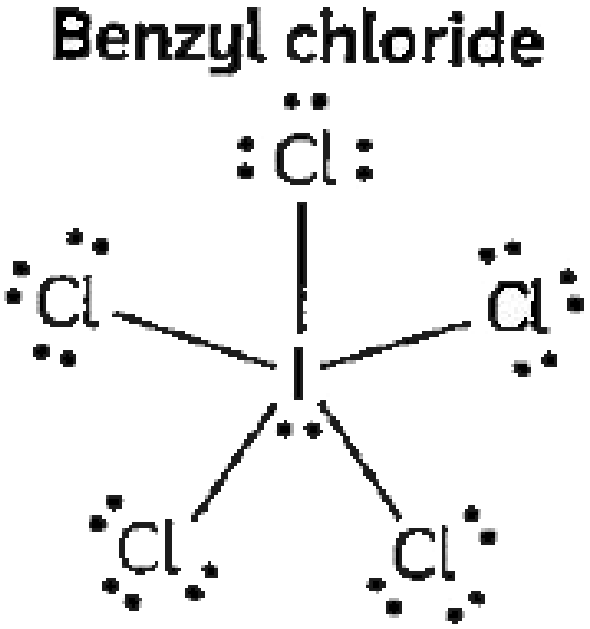
**3.** Complete the following analogy:

Chlorine is attached to benzene ring :A :: Chlorine is attached to an sp3 hybridized carbon atom next to carbon-carbon double bond:B




A. Haloalkane: A, Vinyl chloride:B

B. Chlorobenzene:A:Allyl chloride :B

C. Neopentylchloride :A,Arythalide :B

D. Pentylchloride :A , Haloarene:B

**Answer:**

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**4.** Read the passage below and answer the following quesitons

Solution is a homogeneous mixture of two or more-substances in same or different physical phases. The substances forming the solution are called components of the solution. On the basis

of number of components a solution of two components is called binary solution. Solute and Solvent in a binary solution, solvent is the component which is present in large quantity while the other component is known as solute. [If water is used as a solvent, the solution is called aqueous solution and if not, the solution is called non-aqueous solution. Depending upon the amount of solute dissolved in a solvent we have the following types of solutions: Unsaturated solution a solution in which more solute can be dissolved without raising temperature is called an unsaturated solution Saturated solution o

solution in which no solute can be dissolved further at a given temperature is called a saturated solution Supersaturated solution a solution which contains more solute than that would be necessary to saturate it at a given temperature is called a supersaturated solution.

Of the following terms used for denoting concentration of a solution, the one which does not get affected by temperature is:

A. Mole fraction

B. Molality

C. Normality

D. Formality

**Answer:**

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**5.** Read the passage below and answer the following quesitons

Solution is a homogeneous mixture of two or more-substances in same or different physical phases. The substances forming the solution are called components of the solution. On the basis of number of components a solution of two

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further at a given temperature is called a saturated solution Supersaturated solution a solution which contains more solute than that would be necessary to saturate it at a given temperature is called a supersaturated solution.

Which of the following units is useful in relating concentration of solution with its vapour pressure?

A. Mole fraction

B. Parts per million

C. Mass percentage

D. Molality

**Answer:**

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**6.** Read the passage below and answer the following quesitons

Solution is a homogeneous mixture of two or more-substances in same or different physical phases. The substances forming the solution are called components of the solution. On the basis of number of components a solution of two components is called binary solution. Solute and Solvent in a binary solution, solvent is the

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solution which contains more solute than that would be necessary to saturate it at a given temperature is called a supersaturated solution. Which of the following condition is not satisfied by an ideal solution?

A. $\Delta H_{mix} = 0$

B. $DelaV_{mix} = 0$

C. Rault's Law is obeyed

D. Formation of an azeotropic mixture

**Answer:**

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