

SUMMER VACATIONS HOME WORK

CLASS XII

PHYSICS

Explanation should be given by using graphs and figures. Formula must be written with usual standard notations in the form of ' Project or Activities or Power Point Presentation' .All representation to be done .

1-Study of Gauss's Theorem and it's one application (i.e. to find electric field by using Gauss's theorem).

2- Study of equivalent Capacitance for Series & Parallel Combination of Capacitors

3-Study of Kirchhoff 's Laws .Apply Kirchhoff 's Laws in a Wheatstone Bridge.

4-Experimental Demonstration -To find the specific resistance of a given wire using Meter – Bridge.

5- Experimental Demonstration -To find the internal resistance of a given cell by using Potentiometer.

CHEMISTRY

H.H.W.

- Make presentation on the topic given below:
Roll no. (1 to 3) – Colligative properties
Roll no. (4 to 6) – Properties of Haloalkanes
Roll no. (7 to 10) – Polyhalogens compounds
Roll no. (11 to 13) – Preparation of Alcohols and Phenols

- **Chapter- Solution**

2007

1) State the condition resulting in reverse osmosis? 2) A 0.1539 molal aqueous solution of cane sugar (mol. Mass = 342 g/mol) has a freezing point of 271 K while the freezing point of pure water is 273.15 K. What will be the freezing point of a aqueous solution containing 5 g of glucose (mol mass = 180 g/mol) per 100 g of solution?

2008

- 1) State Raoult's law for solutions of volatile liquid components. Taking a suitable example, explain positive deviation from Raoult's law.
- 2) A solution containing 8g of a substance in 100g of diethyl ether boils at 36.86°C, whereas pure ether boils at 35.60°C. Determine the molecular mass of the solute. (For ether, $K_b = 2.02 \text{ K kg /mol}$.)
- 3) State the law co-relating the pressure of a gas and its solubility in a liquid. State an application of this law.
- 4) Define the term 'osmotic pressure' . Describe how the molecular mass of a substance can be determined on the basis of osmotic pressure measurement.
- 5) Calculate the temperature at which a solution containing 54 g glucose in 250 g water will freeze. (K_f for water is 1.86 K kg /mol)

2009

- 1) Define: a) Mole fraction b) von't Hoff factor 2) 100mg of a protein is dissolved in enough water to make 10.0ml of a solution. If this solution has an osmotic pressure of 13.3mm Hg at 25°C, what is the molar mass of the protein? ($R = 0.0821 \text{ L atm K}^{-1}\text{mol}^{-1}$ and 760mm Hg= 1 atm.)
- 3) What is meant by :
 - a) Colligative properties
 - b) Molality of a solution
- 4) What conc. of nitrogen should be present in a glass of water at room temp? Assume a temp of 25°C , a total pressure of 1 atmosphere and mol fraction of nitrogen in air of 0.78 (K_H for nitrogen = $8.42 \times 10^{-7} \text{ M / mm Hg}$)

2010

- 1) Define osmosis and osmotic pressure? What is the advantage of using osmotic pressure over other colligative properties.

- 2) What mass of NaCl (58.5 g/mol) must be dissolved in 65g water to lower the freezing point by 7.5°C? $K_f = 1.86 \text{ K Kg/mol}$ and i for NaCl = 1.86
- 3) Differentiate between molarity and molality of a solution.
- 4) 15 g of an unknown molecular substance was dissolved in 450 g of water. The resulting solution freezes at -0.34°C . What is the molar mass of the substance? ($K_f = 1.86 \text{ K Kg/mol}$)
- 5) What mass of ethylene glycol (molar mass = 62.0 g/mol) must be added to 5.50 Kg of water to lower the freezing point of water from 0°C to -10.0°C ? ($K_f = 1.86 \text{ K Kg/mol}$)

2011

- 1) State: i) Raoult's law in its general form in reference to solutions. ii) Henry's law about partial pressure of a gas in a mixture.
- 2) A solution is prepared by dissolving 8.95mg of a gene fragment in 35ml of water has an osmotic pressure of 0.335 torr at 25°C . Calculate its molar mass if it is a non electrolyte.
- 3) What is reverse osmosis?
- 4) Difference between molarity and molality values for a solution. What is the effect of change in temperature on molarity and molality values.

2012

- 1) Define the following terms: (i) Mole fraction (ii) Ideal Solution
- 2) 15 g of an unknown molecular substance was dissolved in 450 g of water. The resulting solution freezes at -0.34°C . What is the molar mass of the substance? ($K_f = 1.86 \text{ K Kg/mol}$)
- 3) Explain the following : (i) Henry's Law about dissolution of gas in liquid (ii) Boiling point elevation constant for a solvent
- 4) A solution of glycerol ($\text{C}_3\text{H}_8\text{O}_3$) in water was prepared by dissolving some glycerol in 500 g of water. This solution has a boiling point of 100.42°C . What mass of glycerol was dissolved to make this solution? (K_b for water = 0.512 K Kg/mol)

2013

- 1) State Raoult's law for a solution containing volatile components. How does Raoult's law become a special case of Henry's law ?
- 2) 1.00 g of a non-electrolyte solute dissolved in 50 g of benzene lowered the freezing point of benzene by 0.40 K. Find the molar mass of the solute. (K_f for benzene = 5.12 K kg/mol)
- 3) Define the following terms : (i) Ideal solution (ii) Azeotrope (iii) Osmotic pressure
- 4) A solution of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) in water is labelled as 10% by weight. What would be the molality of the solution ? (Molar mass of glucose = 180 g/mol)

2014

- 1) a) Define the following terms: i) Molarity ii) Molal elevation constant
- b) A solution containing 15 g urea (molar mass = 60 g/mol) per litre of solution in water has the same osmotic pressure (isotonic) as a solution of glucose (molar mass = 180 g/mol) in water. Calculate the mass of glucose present in one litre of its solution. Or
- a) What type of deviation is shown by mixture of ethanol and acetone? Give reason.
- b) A solution of glucose (molar mass = 180g/mol) in water is labelled as 10% (by mass). What would be the molality and molarity of the solution? (Density of solution = 1.2 g/mL)

2015

- 1) On mixing liquid X and liquid Y, the volume of the resulting solution increases. What type of deviation from Raoult's law is shown by the resulting solution? What change in temperature would you observe after mixing liquids X and Y?
- 2) How can the direction of osmosis be reversed? Write one use of reverse osmosis.
- 3) A solution is prepared by dissolving 5 g of non volatile solute in 95 g of water. It has a vapour pressure of 23.375 mm Hg at 25°C. Calculate the molar mass of the solute. (Vapour pressure of pure water at 25°C is 23.75 mm Hg)

2016

- 1) Write two differences between a solution showing positive deviation and a solution showing negative deviation from Raoult's law.
- 2) Calculate the freezing point of a solution when 3 g of CaCl_2 ($M = 111 \text{ g/mol}$) was dissolved in 100 g of water, assuming CaCl_2 undergoes complete ionization. (K_f for water = 1.86 K kg/mol)

2017

- 1) Write two differences between ideal and non ideal solutions.

2018

- 1) Calculate the freezing point of a solution containing 60 g of glucose (Molar mass = 180 g/mol) in 250 g of water. (K_f of water = 1.86 K kg/mol)
- 2) Give reasons for the following :
 - (a) Measurement of osmotic pressure method is preferred for the determination of molar masses of macromolecules such as proteins and polymers.
 - (b) Aquatic animals are more comfortable in cold water than in warm water.
 - (c) Elevation of boiling point of 1 M KCl solution is nearly double than that of 1 M sugar solution.

2019

- 1) State Raoult's law for a solution containing volatile components. Write two characteristics of the solution which obeys Raoult's law at all concentrations.
- 2) A 4% solution(w/w) of sucrose ($M = 342 \text{ g/mol}$) in water has a freezing point of 271.15 K. Calculate the freezing point of 5% glucose ($M = 180 \text{ g/mol}$) in water. (Given: Freezing point of pure water = 273.15 K)

2020

- 1) (a) A solution contains 5.85 g NaCl (Molar mass = 58.5 g/mol) per liter of solution. It has an osmotic pressure of 4.75 atm at 27°C. Calculate the degree of dissociation of NaCl in this solution. (Given : $R = 0.082 \text{ L atm K}^{-1} \text{ mol}^{-1}$)
(b) State Henry's law. Why is air diluted with helium in the tank used by scuba divers?
- 2) (a) When 19.5 g of $\text{F-CH}_2\text{COOH}$ (Molar mass = 78 g/mol) is dissolved in 500 g of water the depression in freezing point is observed to be 1°C. Calculate the degree of dissociation of $\text{F-CH}_2\text{COOH}$. (Given K_f for water = 1.86 K kg mol⁻¹)
(b) Give reasons :
 - (i) 0.1 M KCl has higher boiling point than 0.1 M Glucose.
 - (ii) Meat is preserved for long time by salting.

HOLIDAY HOMEWORK

ENGLISH CLASS 12

1). Paste 12 newspaper clippings of classified columns advertisements and rewrite the same in your words each.

2). Write five letters to the editor on –

- Unhygienic condition in local hospitals
- Corruption at all levels of society
- Rash driving
- Smoking in public places
- Misuse of internet

3). Create five posters on –

- Global Warming
- Yoga Day
- Eye Donation
- Indian Army
- Unity in diversity

4). Read any one novel of your choice and write the review.

- a. The Adventures of Huckleberry Finn by Mark Twain
- b. 1984...by George Orwell
- c. To Sir with Love- E.R. Braithwaite
- d. Great Expectations- Charles Dickens

How to do:- The review is to be written in 250-300 words keeping in mind the given aspects:

- About the Writer
- Summary
- Favourite character
- Analysis

Where to do:- A4 Size sheets

Parameters for Assessment:- Content, language and accuracy

5) Make a video presentation. Record in your voice any poetry, story, write up, any summary of story from your story book in interesting way.

Criteria :-

- Voice Modulation
- Vocabulary
- Intonation
- Confidence

Recording should be of 3 – 4 mins.

Send on WhatsApp 9997666116 / email – priyakalra1972@ gmail.com

Summer Vacations Home Work
Class XII
Maths

Activity 1.

To evaluate the definite integral $\int_a^b \sqrt{1-x^2} dx$ as the limit of sum and verify it by actual integration.

(material required – cardboard, white paper , scale , pencil, graph paper)

Activity 2

To establish a relationship b/w common logarithm (to base 10) and natural logarithm (to base 'e') of the number 'x' .

(material required – hardboard, white sheet, graph paper, scale, calculator or log table.)

Activity 3

To sketch the graph of a^x and $\log_a x$, and to examine that they are mirror image of each other.

(material required – Drawing board, geometrical instruments, drawing pins, thin wires, sketch pen, thick white paper, adhesive, pencil ,eraser, a plane mirror, squared paper.)

I.P.

Maintain one file having 15 programs with output of python programming language.

First page should contain introduction of python.

Physical Education

Practical file Physical Education include one sports of your choice.

5Yoga Asana with their benefits

One combine video on topic Diseases Cure by Yoga Asana