Summer Vacation Homework-2024

CLASS XII

PHYSICS

1 Solved Exercise

Chapter- 1- ELECTRIC Charges and field

Chapter – 2 – Electrostatic potential and capacitance

Chapter – 3 – Current Electricity

NCERT and concept of physics (by H.C. Verma)

2 Case Study Based Questions (Solved) : Any two from each three chapter.

3 Assertion and Reasoning type Questions: Any ten from each three chapter.

4 Competency Based Questions

Any twenty multiple question (Solved) from each three chapter.

5 One Project any topic

CHEMISTRY

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INSTRUCTIONS:
(i) Complete the following assignment and submit it just after summer vacation.
(ii) Highlight the important technical terms in your answer.
(iii) In numerical problems, you have to give data first with the conversion of units if necessary, then the formula and then working. The final answer should be highlighted with units.
1. Two liquids A and B boil $120°$ C and $80°$ C respectively. Which one of them will have higher vapour pressure ?
2. Which of the following solutions has the highest boiling point and why ? 0.1 M glucose, 0.1 M KCl, 0.1 M Na_2SO_4 .
3. State Raoult's law for a solution of two miscible liquids.
4. State Henry's law. Write two uses of Henry's law.
5. At the same temperature, hydrogen is more soluble in water then helium. Which of them will have a higher value of Henry's law constant and why ?

6. Which type of non- ideal behaviour is shown by a mixture of :

(i) Acetic acid + Pyridine

(ii) Cyclohexanol + Water

(iii) Nitric acid + Water

7. Define molal elevation constant and write its unit.

8. What is van't Hoff factor for the following achieving complete dissociation :

(i)$Al_2(SO_4)_3$ (ii) $BaCl_2$ (iii) NaCl

9. What are isotonic, hypotonic and hypertonic solution ? What will happen when a hypotonic solution will be injected to a dehydrating patient ?

10. The freezing point depression of 0.1% molal solution of NaCl is 0.372 K. What conclusion can you draw about its molecular state in solution ? K_f = 1.86 K Kg/ mol.

11. Give reasons :

   (i) The solubility of gases in liquids decreases with increase in temperature.

   (ii) The vapour pressure of a solution is always less than that of pure solvent.

   (iii) Red blood cells placed in pure water swell while those placed in saline water shrink.

   (iv) Osmotic pressure method is preferred for the determination of molar mass of biopolymers such as proteins.

    (v) The vapour pressure of a solution is less than that of the pure solvent.

    (vi) Molality is preferred her molarity.

12. Why is the boiling point of a solution more than that of your solvent while it's freezing point is lower ? Explain with graphs.

13. What are Azeotropes? Which type of solutions for minimum boiling easy drops ? Give one example of each .

14. What are colligative properties ? Why do calculations based on colligative properties give abnormal molar mass of solutes ? How can the expression for colligative properties be modified for such solutes ?

15. (a)Distinguish between ideal and non-ideal solutions.

    (b) Name the two types of non- ideal solutions and explain the reason for their different behaviour with suitable graphs.

16. 100 mg of protein is dissolved in just enough water to make 10 ml of solution. If this solution has an osmotic pressure of 13.3 mm of Hg at 25°C, what is the molecular mass of protein ? (R = 0.0821 L atm/K/mole, 760 mm Hg = 1)

17. Methanol and ethanol form nearly ideal solutions at 300 K. A solution is made by mixing 32 g of methanol and 23 g of ethanol. Calculate the partial pressure and total vapour pressure of the solution. What is the mole fraction of methanol in the vapour phase ? At 300 K, p° methanol = 90 mm Hg, p° ethanol = 51 mm Hg.

18. Calculate the number of moles of methanol in 5 L of its 2 m solution having density 0.981 g/cc.

19. A solution containing 3.82 g of $MgCl_2$ in 400 g of water boils at 100.14°C . Calculate the van't Hoff factor and the degree of dissociation of $MgCl_2$ (Mg = 24, Cl = 35.5)

20. A solution containing 2.56 g of sulphur dissolved in 100 g of CS_2 gave a freezing point depression of 0.383 K. Calculate the molecular formula of sulphur. K_f for CS_2 = 3.83 K Kg/mol.

21. There is an electrochemical cell involving zinc anode in zinc sulphate solution and copper cathode in copper sulphate solution. Answer the following questions :

   (i) Write cell reaction for this electrochemical cell.

   (ii) Give cell representation for this cell reaction.

   (iii) Write Nernst equation for this cell.

MATHEMATICS

. Project work:

Using power point

Sl.No	TOPIC	ROLL NO ALLOTED	PATTERN	NO.of Questions
1	Relation and Function	1,2,3,10,25,26,27,37,41	CBSE PYQ according to Syllabus	30
2	Inverse Trigonometry	6,7,8.9,21,24,28	CBSE PYQ according to Syllabus	30
3	Matrices & Determinants	15,16,17,18,19,20	CBSE PYQ according to Syllabus	30
4	Relation,Function,Inverse Trigonometry	4,11,12,13,14,35	JEE. MAINS PYQ according to Syllabus	30

5	Matrices & Determinants	22,32,33,34	JEE MAINS PYQ according to Syllabus	30
6	Relation,Function,Inverse Trigonometry	23,29,30,31,40	NDA PYQ according to Syllabus	30
7	Matrices & Determinants	5,36,38,39	NDA PYQ according to Syllabus	30

BIOLOGY

1. Complete the project work given in the class

2. Complete the questions given in the class of both the chapters

ENGLISH

1.Find out 50 words from your taught chapters and write their meanings.Frame sentences from these words.(50 sentences)

2.Define these figures of speech with examples -

Simile,
Metaphor,Personification,Hyperbole,Irony,Synecdoche,Metonymy,,Paradox and
Alliteration

3.The Last Lesson highlights the importance of valuing and presenting one's mother tongue as it connects individuals to their roots .Write an article on the" Importance of Mother Tongue for One's Own Identity" in about 1000 words.

Physical Education

Q.no1 Write in detail about SAI (sports authority of India)

Q.no 2 why SAI khelo India is important for School students?

Q.no 3 write the test battery of SAI khelo India physical fitness test for the age group of 9-18 years in detail. It involves purpose, equipment required & test procedure with figure.

Q.no 4 write in details of your choice game. Draw a diagram of ground/court with all specifications.

Q.no 5 Write the various sports committee and their responsibilities.

 I.P. (065)

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Q1. Define Pandas libraries.

Q2. Make a list of Series( ) attributes on chart paper.

Q3. Write a python program to create a series with list and dictionary.

HINDI

1.'मैं और, और जग और, कहाँ का नाता'-पंक्ति में 'और' शब्द की विशेषता बताइए।

2.'सबसे तेज़ बौछारें गयीं, भादो गया' के बाद प्रकृति में जो परिवर्तन कवि ने दिखाया है, उसका वर्णन अपने शब्दों में करें।

3.भक्तिन अच्छी है, यह कहना कठिन होगा, क्योंकि उसमें दुर्गुणों का अभाव नहीं। लेखिका ने ऐसा क्यों कहा होगा?

4.बाजार का जादू चढ़ने और उतरने पर मनुष्य पर क्या-क्या असर पड़ता है?

5.निम्न में से किसी एक पर निबंध लिखें।

नारी सशक्तिकरण

अथवा

अनुशासन का महत्त्व

PAINING

1- draw madhubani painting on a paper and colour it

2 draw beach scene and colour it.

HAPPY SUMMER VACATION TO ALL

STAY SAFE AND HEALTHY