SUMMER VACATION HOME ASSIGNMENT :

Students are to prepare chart paper as the topic assigned to them as follow-

Roll No.s	Chapter	Topic (figures only)
1	8	Replication of retrovirus (fig 8.6)
2	3	Female reproductive system (fig 3.3 b)
3	2	T.S. of young anther (fig 2.3 a and b)
4	8	Structure of antibody molecule (fig 8.4)
5	8	Plasmodium life cycle (fig 8.1)
6	2	Mature embryo sac (fig 2.8 c)
7	6	Codons for various amino acids (table 6.1)
8	2	Stages in embryo development in dicot .(fig 2.13 b)
9	2	Enlarged view of pollen grain tetrad (fig 2.5)
10	1	Asexual reproductive structures(fig 1.3)
11	1	Types of gamates (fig 1.5)
12	10	Microbes (fig 10.3)
13	5	Symbols used in pedigree analysis (fig 5.13
14	6	DNA double helix (fig 6.3)
15	2	L.S of pistil showing path of pollen tube growth (fig 2.12 c)
16	5	A dihybrid cross (fig 5.7)
17	---------------	----------------
18	11	Representation of recombinant DNA technology (fig 11.2)
19	11	PCR (fig 11.6)
20	-------------------	--------------
21	----------------------	--------------
22	2	Typical anatropous ovule (fig 2.7 a and d)
23	3	Seminiferous tubule (fig 3.5)
24	3	Structure of sperm (fig 3.6)

Q.1. Revise all the exercise from chapter 1 to chapter 4.

Q.2. Do all the examples of all exercise from chapter 1 to chapter 4 in your notebook.

Q.3. Collect last 5 years CBSE question paper.

Q.4. Do all the questions which have been asked in last 5 year CBSE papers from chapter 1 to chapter 4.

Solutions

1. Define the following terms:

　　a) molarity　　**b)** molality　　**c)** mole fraction　　**d)** mass%　　**e)** volume % **f)** parts per million
　　　　g) azeotrope.

2. What is the effect of temperature on the molarity of the solution ?

3. molality, mole fraction, and mass% are independent of temperature. Why?

4. What is the effect of temperature on the solubility of

　　a) solid in a liquid　　**b)** gas in a liquid ?

5. State Henry's law. Give the mathematical expression for the law.

6. Mention three applications of Henry's law.

7. State Raoult's law for a solution containing two volatile solvents. Give the mathematical expression for the law.

8. Derive the mathematical expression to show that the relative lowering of vapor
　pressure of a solution containing a nonvolatile solute and a volatile solvent is equal to
　the mole fraction of the solute.

9. Mention the condition where Raoult's law becomes a special case of Henry's law.

10. What are ideal solutions? Mention the conditions for a solution to behave ideally.Draw a graph of vapor pressure vs mole fraction for an ideal solution.

11. What are non ideal solutions? Mention the conditions for a solution to behave non ideally.

12. Explain the type of deviation exhibited by a mixture of

　　a) ethanol and acetone　　**b)** acetone and chloroform.　**c)** phenol and aniline. Draw a graph of vapor pressure vs mole fraction in each case.

13. What do you mean by the terms

　　a) maximum boiling azeotrope
　　b) minimum boiling azeotrope. Give one example each.

14. What are colligative properties? Give four examples.

15. Explain the following colligative properties with suitable graphs.

　　a) elevation of boiling point
　　b) depression of freezing point.

16. Define Kf and Kb. Give mathematical expression to show that Kf and Kb depends on the nature of the solvent.

17. Define osmosis and osmotic pressure. Why is osmotic pressure method is considered as a better method when compared to other colligative properties to determine molar mass of the solute.

18. What is reverse osmosis? Mention one application of the same.

19. What do you mean by abnormal molar mass? How does it occur due to
    a) association of solute?
    b) dissociation of solute?

20. What is Van't Hoff factor i? Give its value for
    a) association of solute.
    b) dissociation of solute.
    c) solute which is neither associates nor dissociates

21. Which is more concentrated? 1 molar or 1 molal solution. Why?

22. What do you mean by the terms
    a) isotonic solution.
    b) hypertonic solution
    c) hypotonic solution?

23. Account for the following:
    a) intravenous injection is given by using 0.9% NaCl (mass/volume) solution.
    b) Dried fruits and vegetables swell when kept in fresh water.
    c) The tanks used by scuba divers are diluted with helium.
    d) Mountain climbers sometimes get symptoms of a condition known as anoxia.
    e) Calcium chloride is added to clear the roads covered by snow.
    f) Raw mango placed in concentrated salt solution shrivel in to pickle.
    g) People suffering from high blood pressure are advised to take minimum quantity of salty food.
    h) People taking lot of salty food get affected by edema.
    i) Meat is preserved by salting and fruits are preserved by adding sugar.

24. What will happen when a blood cell is placed in
    a) solution having NaCl concentration less than 0.9%(mass/volume)
    b) solution having NaCl concentration higher than 0.9%(mass/volume)?

KENDRIYA VIDYALAYA NORTH LAKHIMPUR ASSAM

SUMMER BREAK HOMEWORK

SUBJECT-PHYSICS   CLASS-XII

1. What is the electric flux through a cube of 1cm which encloses an electric dipole?
2. An electric dipole of dipole moment 20×10^{-6} Cm is enclosed by a closed surface. What is the net flux through the surface?
3. Define electric flux. Write its S.I. unit.
4. A point charge is placed at the centre of a spherical Gaussian surface. How will the electric flux change if:
    (a)   the sphere is replaced by a cube of same or different.
    (b)   A second charge is placed near, and outside, the original sphere.
    (c)   A second charge is placed inside the sphere.
    (d)   The original charge is replaced by electric dipole.
5. Using Gauss's law, derive an expression for the electric field intensity at any point outside a uniformly charged thin spherical shell of radius R and density σ C/m^2.

Draw the field lines when the charge density of the sphere is (i)positive (ii)negative.

6. A uniformly charged conducting sphere of 2.5m in diameter has a surface charge density of $100\mu C/m^2$. Calculate (i) charge on the sphere (ii) total flux passing through the sphere.

7. No work is done in moving attest charge over an equipotential surface. Why?

8. An electric dipole is held in a uniform electric field.
   (i)   Show that the net force acting on it is zero.
   (ii)   The dipole is aligned parallel to the field. Find thework done in rotating it through an angle of 180^0.

9. Two wires one of copper and other manganin, have same resistance and equal thickness. Which wire is longer? Justify your answer.

10. A slab of material of dielectric constant K has the same area as that of the plates of a parallel plate capacitor but has the thickness 2d/3, where d is the separation between the plates. Find out the expression for its capacitance when the slab is inserted between the plates of the capacitor.

11. Using Gauss' law deduce the expression for the electric field due to a uniformly charged spherical conducting shell of radius R at a point (i) outside and (ii) inside the shell. Plot a graph showing variation of electric field as a function of r > R and r < R. (r being the distance from the centre of the shell.

12. (a)Define electric dipole moment. Is it a scalar or a vector? Derive the expression for the electric field of a dipole at a point on the equatorial plane of the dipole. (b) Draw the equipotential surfaces due to an electric dipole. Locate the points where the potential due to the dipole is zero.

13. Explain the term 'drift velocity' of electrons in a conductor. Hence obtain the expression for the current through a conductor in terms of 'drift velocity'.

14. In the meter bridge experimental set up, shown in the figure, the null point 'D' is obtained at a distance of 40 cm from end A of the meter bridge wire. If a resistance of 10 W is connected in series with R1, null point is obtained at AD = 60 cm. Calculate the value of R1 and R2.

15. A capacitor of unknown capacitance is connected across a battery of V volts. The charge stored in it is 360 mC. When potential across the capacitor is reduced by 120 V, the charge stored in it becomes 120 mC. Calculate: (i) The potential V and the unknown capacitance C. (ii) What will be the charge stored in the capacitor, if the voltage applied had increased by 120 V?

16. State the underlying principle of a potentiometer. Write two factors by which current sensitivity of a potentiometer can be increased. Why is a potentiometer preferred over a voltmeter for measuring the emf of a cell?
17. Derive an expression for drift velocity of free electrons. How does drift velocity of electrons in a metallic conductor vary with increase in temperature? Explain.
18. A capacitor of 200pF is charged by a 300V battery. The battery is then disconnected and the charged capacitor is connected to another uncharged capacitor of 100 pF. Calculate the difference between the final energy stored in the combined system and the initial energy stored in the single capacitor.
19. (a) Define electric flux. Write its S.I. units. (b) Using Gauss's law, prove that the electric field at a point due to a uniformly charged infinite plane sheet is independent of the distance from it. (c) How is the field directed if (i) the sheet is positively charged, (ii) negatively charged?
20. Project work.

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[illegible]

[illegible] **12**

1. [illegible] |
2. [illegible] |
3. 25 [illegible] | ([illegible])
4. 4 [illegible], 2 [illegible],2 [illegible] 4 [illegible] |
5. [illegible] |
6. [illegible] |
7. [illegible]|

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HOLIDAY HOME WORK

CLASS XII

A.The last lesson

1. Answer the following questions in 200-250 words.
    a. Everyone in the last lesson was filled with regret. Comment.
    b. How the order from Berlin changed the situation at school.
    c. How was the school unusual that day?
    d. How Franz spent his last lesson at school?
    e. Give character sketch of M. Hamel.

2. Answer the following questions in 30-40 words.
   a. Justify the title 'The Last Lesson'.
   b. Give character sketch of Franz.
   c. What was the order from berlin? How the order changed everything?
   d. Why mr. M. hamel wrote Vive la France.

B. Lost Spring

1. Read the extract given below and answer the questions that follow.
2. Answer the following questions in 150 to 200 words.
   a. How was Mukesh more ambitious than Saheb.
   b. How the stories were different from each other.
   c. Describe the condition of bangle makers and rag-pickers.
   d. Justify the title 'Lost Spring'.
3. Answer the following in 30-40 words.
   a. Give character sketch of Saheb, Mukesh and Savita.
   b. Why the bag was heavier than his polythene bag of rag picking.

C. Solve last five years board papers.
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HOLIDAY HOMEWORK FOR SUMMER VACATION
CLASS XII
SUBJECT : COMPUTER SCIENCE

1. Solve all question of Randomizer, C++ Output Based ,Syntax error correction, Class and object ,Inheritance of CBSE board exam of year 2014,2015,2016,2017,2018.
2. Memorize object oriented feature(Abstraction, Encapsulation, Inheritance, Polymorphism) with example.
3 .Memorize function overloading , Constructor & destructor with examples .

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