NORTH-EX PUBLIC SCHOOL
(Senior Secondary, Affiliated To CBSE)
School Block, Jain Nagar, Sector-38, Rohini, Delhi – 81
SUMMER HOLIDAY HOMEWORK, 2025-26
CLASS – XII (SCIENCE)

ENGLISH

1. Learn and revise all the syllabus of PERIODIC TEST-I.
2. Prepare your ASL Project file.
3. Prepare your ASL topic (Assessment of Speaking and Listening Skills)
4. Practice Comprehension Passage (Any 3)
5. Write Notices on the following occasions.
   a. Tours
   b. Sports
   c. Cultural / Extra- curricular activities

6. Water supply will be suspended for 8 hours 10:00 a.m. to 6:00 p.m. on 30th of May for cleaning of the water tank. Write a notice in about 50 words advising the residents to store water a day before. You are Karan, secretary of your society.
7. Write the article on the topic, 'My vision of future India'. (Word-limit 150- 200).
8. Write the article on the topic, 'Digital education in India'. (Word-limit 150- 200).
9. Write a speech in 150 to 200 words on the topic 'discipline shapes the future of a student. It is to be delivered in the morning assembly of your school.
10. The youth of the country are very vigilant these days and a very concerned about the problem being faced by the people. Write a letter to the editor of a national daily urging him to highlight the role of the youth in eradicating the problems of poverty, unemployment and corruption. You are Rohit / Rihanna.

PHYSICS

1. Define electric field intensity and derive an expression for it at a point on the axial line of a dipole. Also determine its direction.
2. Write Coulomb's law in vector form. What is the importance of expressing it in vector form?
3. Using Gauss's theorem, obtain an expression for the force between two-point charges.
4. What do electric lines of force represent? Explain repulsion between two like charges on their basis.
5. A thin semi- circular ring of radius r has a positive charge q distributed uniformly over it. Find the net electric field E at its centre?
6. An electron is placed at each of the eight corners of a cube of side a and an α-particle at the centre of the cube. Calculate the potential energy of the system.
7. 125 drops of water each of radius 2 mm and carrying charge of 1 nC are made to form a bigger drop. Find the capacitance and potential of the bigger drop.

8. Two capacitors of capacitance of 6 μF and 12 μF are connected in series with a battery. The voltage across the 6 μF capacitor is 2 V. Compute the total battery voltage.
9. Complete practical and activity files.
10. Make an investigatory project with working model.

S No	Roll numbers	Suggested Investigatory projects
1	5,9,21,25	To study various factors on which the internal resistance/EMF of a cell depends.
2	6,10,22,26	To study the variations in current flowing in a circuit containing an LDR because of a variation in (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.
3	7,11,23,27	To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle.
4	8,12,24,28	To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
5	1,13,17,29,33	To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
6	2,14,18,30,34	To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
7	3,15,19,31,35	To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.
8	4,16,20,32	To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.

CHEMISTRY

1. Calculate the molarity of a solution containing 5 g of NaOH in 450 mL solution.
2. State Henry's law.
3. 0.1 mole of acetic acid was dissolved in 1 kg of benzene. Depression in freezing point of benzene was determined to be 0.256 K. What conclusion can you draw about the state of the solute in solution? (Given, K_f for benzene = 5.12 K kg mol^{-1})
4. State how the vapour pressure of a solvent is affected when a non-volatile solute is dissolved in it.
5. Define the following terms:
   i. Mole fraction
   ii. Molarity
6.
   i. When 2.56 g of sulphur was dissolved in 100 g of CS_2, the freezing point lowered by 0.383 K. Calculate the formula of sulphur (S_x) (K_f for CS_2 = 3.83 K kg mol^{-1} The atomic mass of sulphur = 32 g mol^{-1})
   ii. Blood cells are isotonic with 0.9% sodium chloride solution. What happens if we place blood cells in a solution containing
      a. 1.2% sodium chloride solution?
      b. 0.4% sodium chloride solution?

7. When acidulated water (dil.H_2SO_4 solution) is electrolysed, will the pH of the solution be affected? Justify your answer.
8. How much charge is required for the reduction of 1 mol of Zn^{+2} to Zn?
9. What is the effect of temperature on the electrical conduction of:
    i. Metallic conductor
    ii. Electrolytic conductor?
10. Why zinc reacts with dilute H_2SO_4 to give the gas but copper does not?
11. Project

Roll no 1,7,13,19,25

Study of the presence of oxalate ions in guava fruit at different stages of ripening.

Roll no 2,8,14,20,26

Study of quantity of casein present in different samples of milk.

Roll no 3,9,15,21,27

Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.

Roll no 4,10,16,22,28

Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)

Roll no 5,11,17,23,29

Study of digestion of starch by salivary amylase and effect of pH and temperature on it.

Roll no. 6,12,18,24,30

Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.

MATHEMATICS

1. $\begin{bmatrix} x+3 & z+4 & 2y-7 \\ -6 & a-1 & 0 \\ b-3 & -21 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 6 & 3y-2 \\ -6 & -3 & 2c+2 \\ 2b+4 & -21 & 0 \end{bmatrix}$, then find values 0f a,b,c and z.
2. If $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$, then find $A^2 - 5A + 6I$.
3. Solve the system of linear equation by matrix method.
   (a) $x - y + z = 4$ (b) $2x + y - 3z = 0$ (c) $x + y + z = 2$
4. If $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$ find A-1 . Using A-1 solve the system of equation

x +2y +z = 4

-x +y +z = 0

X -3y + z = 2

5. $\begin{bmatrix}1 & -1 & 2\\ 0 & 2 & -3\\ 3 & -2 & 4\end{bmatrix}\begin{bmatrix}-2 & 0 & 1\\ 9 & 2 & -3\\ 6 & 1 & -2\end{bmatrix}$ to solve the system of equations x+3z = 9
-x + 2y -2z =4 and 2x -3y +4z=3.

6. consider a matrix A of order 3x3 such that IAI = 5. On the above information , answer the following questions.

a) Find the value of $|adjA|$.

b) Find the value of $|adjA(adjA)|$.

c) Find the value of $|5A^{-1}|$.

7. Let L be the set of all lines in a plane and R be a relation on L defined by l_1 R l_2 iff l_1 is perpendicular to l_2 , then R is equivalence relation or not.

8. Which is greater tan1 or $\tan^{-1}1$.

9. Show the relation R in the set A=$\{x \in Z: 0 \leq x \leq 12\}$, given by R=$\{(a, b): |a - b| \text{ is a multiple of } 4\}$ is an equivalence relation. Also give an example of a relation which is reflexive and symmetric but not transitive.

10.Find the value of $\cos\left(\frac{\pi}{6} + \cot^{-1}(-\sqrt{3})\right)$.

11. If $sin^{-1}x + sin^{-1}y + sin^{-1}z = \frac{3\pi}{2}$, then find the value of

$X^{100} + y^{100} + z^{100} - \frac{9}{x^{101}+y^{101}+z^{101}}$

12.Do activities no. 1,3,4,9,14, 15,16,20,26,27 in lab manual .

BIOLOGY

Q. 1. Differentiate between Geitonogamy and Xenogamy in plants. Which one between the two will lead to Inbreeding Depression and why?

Q. 2. The flower of brinjal is referred to as chasmogamous while that of beans is cleistogamous. How are they different from each other?

Q. 3. State the significance of pollination. List any four differences between wind pollinated and animal pollinated flowers.

Q. 4. Explain the male reproductive system with all parts and their functions in details with well labelled diagram.

Q. 5. Give the summary of mensural cycle with all events with diagram.

Q. 6. Explain the female reproductive system & Male Reproductive system with all parts and their functions in details with well lebelled diagram.(Chart)

Q. 7. Describe the pre-fertilisation and post-fertilisation events.

Q. 8. Difference between oogenesis and spermatogenesis.

Q. 9. Explain the medical termination of pregnancy (MTP).

Q. 10. what is sexually transmitted disease (STDs)? explain with suitable examples.

Q No 11 - Make a detailed Project on Reproductive Health , Pollination and their Agents , Female Reproductive Organ and their Functions.

Q No 12 - Make a Working Model on :

★ Reproduction in Flower
★ Double Fertilization, Ovule
★ Reproductive Organ
★ Gametogenesis
★ Genetic Code, DNA , Histone Octamer

PHYSICAL EDUCATION

Q1. Explain causes of Osteoporosis with symptoms.
Q2. Enlist the symptoms of female athlete triad.
Q3. What are the corrective measures for flat foot.
Q4. What are the physical benefit of women participation in sports.
Q5. Write down physical activities exercise guideline for under 5 of age.
Q6. Briefly write about physical activities/exercises guidelines for adults above 65 years of age.
Q7. What is meant by Round Shoulder? Mention few exercise to correct it.
Q8. Draw a fixture of 18 teams participating in knockout tournament .
Q9. Draw a fixture of 21 teams in which 4 teams are special seeded type.
Q10. Draw a fixture of 23 teams on the basis of league cum League.