

SRI RAM KRISHAN DAV PUBLIC SCHOOL,SURIYA,GIRIDIH

DEEPAWALI HOMEWORK 2025-26

Class XI

PHYSICS

Section-A

- 1.To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume
2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.

Section B

1. To determine Young's modulus of elasticity of the material of a given wire.
2. 2.To study the relation between frequency and length of a given wire under constant tension using sonometer.

CHEMISTRY

PREPARE LAB MANUAL

BIOLOGY

Students are instructed to complete their assigned BIOLOGY experiments neatly in the practical notebook during the vacation and submitted on the first day after the holidays.

COMPUTER SCIENCE

PREPARE LAB MANUAL

MATHS

Chapter – Sets

Activity: Representation of Sets using Venn Diagram

Objective: To represent sets and verify set identities using Venn diagrams.

Materials Required: Chart paper, compass, coloured pens, scissors, glue.

Procedure:

- Draw two overlapping circles to represent sets $\{A\}$ and $\{B\}$.
 - Shade appropriate regions for $(A \cup B)$, $(A \cap B)$, and $(A \cup B)'$.
 - Verify the identity $(A \cup B)' = A' \cap B'$.
- Observation: The shaded regions for both sides of the identity overlap exactly.
- Result: Verified that $(A \cup B)' = A' \cap B'$.
- Conclusion: The Venn diagram visually confirms the given set identity.

Chapter – Relations and Functions

Activity: Representation of a Function using Arrow Diagram

Objective: To represent a function as a special type of relation using an arrow diagram.

Materials Required: Chart paper, coloured markers, cutouts of numbers.

Procedure:

- Take two sets: $\{A\} = \{1, 2, 3\}$ and $\{B\} = \{4, 9, 16\}$.
- Define a relation $\{R\}$ such that $\{R = \{(x, y) \mid y = x^2, x \in A\}\}$.
- Draw arrows from each element of $\{A\}$ to its image in $\{B\}$.

Observation: Each element of $\{A\}$ corresponds to exactly one element of $\{B\}$.

Result: Hence, $\{R\}$ is a function.

Conclusion: A function is a relation in which each element of the domain is related to one and only one element of the codomain.

Chapter – Trigonometric Functions

Activity: Verification of Trigonometric Identity

Objective: To verify the identity $\sin^2 A + \cos^2 A = 1$.

Materials Required: Scientific calculator, chart paper, pencil, scale.

Procedure:

- Take angles $A = 30^\circ, 45^\circ, 60^\circ, 90^\circ$.
- Calculate $\sin A, \cos A$ for each angle.
- Compute $\sin^2 A + \cos^2 A$ and verify whether it equals 1.

Observation: For all angles, $\sin^2 A + \cos^2 A = 1$.

Result: Verified that $\sin^2 A + \cos^2 A = 1$.

Conclusion: The trigonometric identity is true for all values of A .

Chapter – Complex Numbers

Activity: Geometrical Representation of Complex Numbers

Objective: To represent complex numbers geometrically on the Argand plane.

Materials Required: Graph paper, ruler, pencil, coloured pens.

Procedure:

- Plot $z_1 = 2 + 3i, z_2 = 1 - 2i, z_3 = -2 + i$ on the Argand plane.
- The x-axis represents the real part, and the y-axis represents the imaginary part.
- Observe how addition or subtraction of complex numbers changes their position.

Observation: The addition of complex numbers follows the parallelogram law.

Result: Complex numbers can be represented as points on the Argand plane.

Conclusion: Complex numbers behave like vectors when represented geometrically.

Chapter – Permutations and Combinations

Activity: Verification of the Relation $nCr = nC(n-r)$

Objective: To verify the relation $nCr = nC(n-r)$.

Materials Required: Calculator, chart paper, sketch pens.

Procedure:

- Take $n = 5, r = 2$.
- Compute: ${}^5C_2 = 5! / (2! \times 3!) = 10$ and ${}^5C_3 = 5! / (3! \times 2!) = 10$.
- Compare both values.

Observation: $nCr = nC(n-r)$.

Result: The equality is verified successfully.

Conclusion: Choosing r objects from n is the same as choosing $(n-r)$ objects.