Subject : English

Project Components:

1. **Character Diary Entries:**
   o Students will write **imagined diary entries** from the perspectives of:
     ▪ **The narrator in "The Portrait of a Lady"**, reflecting on the emotional impact of his grandmother's death and how she shaped his values.
   o Diary entry should be **1–2 pages**, written in the **first person**.
2. **Visual Collage or Poster:**
   o Create a **visual collage** (handmade or digital) titled **"Preserving What We Lose"**, using symbols, drawings, or clippings that represent:
     ▪ Family, memory, and transition ("The Portrait of a Lady")

Subject : Mathematics
CHAPTER – SET THEORY

1. Let A = {1, 5, 9} and B = {2, 3, 4, 5, 6, 7, 8, 9}. What is $A \cap B$?

   a) {1,5, 6}   b) {5, 9}   c) {5, 6}   d) { 2,6, 8,9}

2. If A = {1, 2, 3}, then what is $n(P(A))$?, $n(P(A))$= Number of elements of power set A

   a) 27   b) 3   c) 8   d) none of these.

3. Two sets E and F are said to be disjoint if :

   a) $E - F = E$ b) $E \cap F = \emptyset$ c) $E \cup F = \emptyset$ d) $E \cap F \neq \emptyset$

4. If X and Y are two sets such that Y has 40 elements and $n(X \cup Y) = 60$ and $n(X \cap Y)$ = 10 elements, how many elements does X have?

5. If A = {x : x is a multiple of 2 , $1 \leq x \leq 10$} and B = {x : x is a multiple of 4, $1 \leq x \leq 9$}, then find $A \cap B$

6. In a class of 100 students, 55 students have passed in Mathematics and 67 students have passed in Physics. Then find the number of students who have passed in Physics only?

7. In a town of 840 persons, 450 persons read Hindi, 300 read English and 200 read both. Then find the number of persons who read neither ?

8. $A = \{1,2,7,9\}, U = \{1,2,3,4,5,6,7,8,9,10\}$ *find Compliment of A*

9. Define Symmetric difference of two sets.

10. Find Power Set of $A = \{1,2,3,4\}$

11. Solve Exercise **1.1 to 1.4** all questions from **NCERT BOOK**.

Subject : Physics (Class: XI A)

1. Define physical quantity. Differentiate between fundamental and derived quantities with examples.

2. What are base units? Write the seven base quantities and their SI units.

3. What is meant by dimensional analysis? State two uses of dimensional equations.

4. Check the dimensional consistency of the equation: $v^2=u^2+2as$

5. The period of a simple pendulum is given by $T=2\pi \ (l/g)^2$. Check the correctness of this formula using dimensional analysis.

6. What is meant by significant figures? Determine the number of significant figures in the following: (a) 0.070, (b) 3.500, (c) 5006.

7. Convert a speed of 36 km/h to m/s using unit conversion.

8. A body starts from rest and accelerates uniformly at 2 m/s² for 5 seconds. Find the final velocity and the distance covered.

9. Differentiate between average speed and instantaneous speed with examples.

10. A particle moves along a straight line with an initial velocity of 10 m/s and acceleration of –2 m/s². How long will it take to come to rest?

Subject : Physics (Class: XI B)

1. Check the dimensional correctness of the equation: $v = u + at$

2. Find the dimensions of the universal gravitational constant G from the formula:
$$F = G\frac{m_1 m_2}{r^2}$$

3. If kinetic energy is given by $KE = \frac{1}{2}mv^2$, find the dimensions of kinetic energy.

4. Using dimensional analysis, derive the formula for the time period of a pendulum
$$T = 2\pi\sqrt{\frac{l}{g}}$$

5. The escape velocity of a planet is given by $v = \sqrt{\frac{2GM}{R}}$. Use dimensional analysis to verify this equation.

6. A formula is given as $= ma + bt$, where F is force. Find the dimensions of b.

7. A quantity X is given as $X = \frac{A^2}{BT}$, where A has dimensions of electric current, B has dimensions of resistance, and T is time. Find the dimensions of X.

8. The period T of a satellite is given as $T = k.r^p.M^q$, where r is radius; M is mass of the planet. Use dimensional analysis to find the values of p and q.

9. Determine the dimensions of Planck's constant using the relation E=hv.

10. The surface tension S is defined by force per unit length. Find the dimensional formula of surface tension.

11. The pressure P is related to energy density u and volume V as: $P = \frac{u}{V}$. Check if this is dimensionally consistent.

12. Calculate :(4.52+3.8+6.24) ×2.1. Express your answer with correct significant figures.

13. The length of a rod is measured as 12.7 cm and its breadth as 4.3 cm. Find the area with correct significant figures.

14. Find the result of: $\frac{2.563}{1.2}$ with correct significant figures.

15. A student records the time period of a pendulum as:T=2.00±0.01. What is the percentage error in the measurement?

16. The mass of a body is given as 4.56 kg and its volume as 1.52 m³. Calculate density with correct significant figures.

17. The diameter of a sphere is measured as 2.10 cm. Find its volume using $V = \frac{4}{3}\pi r^3$ and give the result with appropriate significant figures.

Subject : Biology

Write all the textual question and answers from the chapter:

1. **THE LIVING WORLD**
2. **BIOLOGICAL CLASSIFICATION**

Subject : Chemistry

Connect mole concept to cooking ingredients.
Task:
Pick 5 kitchen ingredients (e.g., salt, sugar, baking soda, vinegar, etc.)
For each one:
Find molar mass
Measure 1 tablespoon or 1 teaspoon of each → calculate approximate number of moles present

Subject : Computer Science

Q. Draw the Truth Tables for the given Basic Laws of Boolean Algebra:

1. Identity Law

   - $A + 0 = A$
   - $A \cdot 1 = A$

2. Null Law (Dominance Law)

   - $A + 1 = 1$
   - $A \cdot 0 = 0$

3. Idempotent Law

   - $A + A = A$
   - $A \cdot A = A$

4. Complement Law

   - $A + A' = 1$
   - $A \cdot A' = 0$

5. Double Negation Law

   - $(A')' = A$

6. Commutative Law

   - $A + B = B + A$
   - $A \cdot B = B \cdot A$

7. Associative Law

   - $(A + B) + C = A + (B + C)$
   - $(A \cdot B) \cdot C = A \cdot (B \cdot C)$

8. Distributive Law

   - $A \cdot (B + C) = A \cdot B + A \cdot C$
   - $A + (B \cdot C) = (A + B) \cdot (A + C)$

9. Absorption Law

   - $A + (A \cdot B) = A$
   - $A \cdot (A + B) = A$

10. De Morgan's Laws

    - $(A \cdot B)' = A' + B'$
    - $(A + B)' = A' \cdot B'$

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