

**HOPE HALL FOUNDATION SCHOOL**  
**HOLIDAY HOMEWORK (2024-2025)**  
**CLASS-XI SCIENCE**

**Date: - 21. 05.24**

**ENGLISH**

1. Write a speech to be delivered in the morning assembly of your school on the topic- "How to make the world a better place." (125-150 words)
  2. Write an article or a poem on the topic "women empowerment".
  3. Read the novel "The Hound of the Baskervilles" by Arthur Conan Doyle and write its review in 250-300 words including the following points-
    - Plot
    - Theme
    - Genre
    - Characters
    - Opinion of critics
  4. From the base form of the verb form adjectives, adverb, nouns wherever possible by selecting minimum 30 words from the dictionary.
- Note- Do these questions in a separate notebook.

**CHEMISTRY**

1. Differentiate between mass & weight.
2. Differentiate between compound & mixture.
3. Calculate the number of atoms in 0.5 mole atoms of Nitrogen.
4. Calculate the number of molecules in 3.4g of H<sub>2</sub>S.
5. Calculate the number of moles in 11g of CO<sub>2</sub>.
6. Define Empirical and Molecular Formula.
7. Define Molarity, Molality and Mole fraction.
8. Calculate mass of Sodium which contains same number of atoms as are present in 4g of Calcium.
9. Calculate the amount of CO<sub>2</sub> formed when 20g of CaCO<sub>3</sub> is reacted with 20g of HCl.
10. Find out the molarity of 2m aqueous NaOH solution having density 1.5 g/ml.
11. Find out the molality of 5M aqueous NaOH solution having density 1.5 g/ml.
12. What is meant by a limiting reactant? How much ammonia is produced on reacting 2g of nitrogen & 1g of hydrogen? Identify the limiting reactant & the amount of reactant left unreacted. (M.M. of N<sub>2</sub>=28, H<sub>2</sub>= 2, NH<sub>3</sub>= 17g mol<sup>-1</sup>)  
$$\text{N}_2 + 3\text{H}_2 \text{ ----> } 2\text{NH}_3$$
13. Calculate molality of 20% H<sub>2</sub>SO<sub>4</sub> acid solution in water. (Atomic mass of S=32, O=16, H=1)
14. How many moles and how many grams of NaCl are present in 250ml of 0.5M NaCl solution in water. (Atomic mass of Na = 23, Cl = 35.5, H = 1, O = 16)
15. If 4g of NaOH dissolved in 36g of H<sub>2</sub>O, calculate the mole fraction of each component in the solution. Also calculate the molality and molarity of the solution. (density of solution is 1g ml<sup>-1</sup>)
16. What amount of sodium can be obtained from 2moles of Na<sub>2</sub>SO<sub>4</sub>. (Na= 23, S= 32, O=16)
17. Learn symbols, atomic number and mass number of first 30 elements.

**PHYSICS**

- Q1. Calculate the velocity of a body that is vertically thrown upwards to a height of 20 m, and the time taken by the object to reach the highest point.
- Q2. From the top of a multi-storey building, a ball is thrown vertically upwards with a velocity of 30m/s. In how much time the ball will hit the ground, if the height of the point from where the ball is thrown is 20 m from the ground? Take g=10ms<sup>-2</sup>.
- Q3. A man walks 2.5 km to a market at 5 km/h, then returns home at 7.5 km/h after finding it closed. What are his average velocities and speeds over various time intervals? 2. A train travels the first 30 km of a 60 km track at 30 km/h. How fast must it travel the next 30 km to average 40 km/h for the entire trip? 3. A train moves at varying speeds over different time intervals. What is its average speed for the journey?
- Q4. Define scalar and vector quantities with example. Distinguish between scalar and vector quantities.
- Q5. Read each statement below carefully and state with reasons and examples, if it is true or false ; A particle in one-dimensional motion
  - (a) with zero speed at an instant may have non-zero acceleration at that instant
  - (b) with zero speed may have non-zero velocity,
  - (c) with constant speed must have zero acceleration,
  - (d) with positive value of acceleration must be speeding up.

- Q6. Can an object be at rest as well as in motion at the same time?  
 Q7. Is it possible that your cycle has a northward velocity but southward acceleration? If yes, how?  
 Q8. A body projected up reaches a point P of its path at the end of 4 seconds and the highest point at the end of 12 seconds. After how many seconds from the start will it reach P again?

## **BIOLOGY**

- Q1. Write a note on economic importance of algae and gymnosperms.  
 Q2. Both gymnosperms and angiosperms bear seeds, then why are they classified separately?  
 Q3. How would you distinguish monocots from dicots?  
 Q4. Describe the important characteristics of gymnosperms.  
 Q5. Explain the term "DOUBLE FERTILIZATION".  
 Q6. Why are Bryophytes called amphibians of the plant kingdom?  
 Q7. How does reproduction take place in Gymnosperms?  
 Q8. How is gametophyte a dominant phase in the life cycle of bryophytes?

## **COMPUTER SCIENCE**

Create one Chart/ A3 sheets on the basis of following topic:-

- a) Uses of Computer      b) Number System      c) Logic Gates      d) Algorithm & Flow Chart

## **PHYSICAL EDUCATION**

Q1 Write notes on the following:-

- a) Career in book writing      b) Career in sports photography      c) Career in sports industry  
 d) Career in marketing      e) Career in coaching

Q2 Make a labeled diagram on any individual game and write its rules (On chart paper).

Q3 Prepare a chart on IPL (Indian Premier League) 2024

## **MATHEMATICS**

Q1. Prove that  $\frac{\sin 5x - 2\sin 3x + \sin x}{\cos 5x - \cos x} = \tan x$

Q2. Prove that  $\sin 4A = 4 \sin A \cos^3 A - 4 \cos A \sin^3 A$ .

Q3. Express the function  $f: A \rightarrow R$ ,  $f(x) = x^2 - 1$ , where  $A = \{-4, 0, 1, 4\}$  as a set of ordered pairs.

Q4. If  $A = \{-1, 2, 3\}$  and  $B = \{1, 3\}$ , then determine

(i)  $A \times B$  (ii)  $B \times C$  (c)  $B \times B$  (iv)  $A \times A$

Q5. In each of the following cases, find a and b.  $(2a + b, a - b) = (8, 3)$  (ii)  $\{a/4, a - 2b\} = (0, 6 + b)$

Q6. If f and g are real functions defined by  $f(x) = x^2 + 7$  and  $g(x) = 3x + 5$ , find each of the following

- (i)  $f(3) + g(-5)$       (ii)  $f(1/2) \times g(14)$   
 (iii)  $f(-2) + g(-1)$       (iv)  $f(t) - f(-2)$   
 (v)  $\frac{f(t) - f(5)}{t - 5}$ , if  $t \neq 5$