

Summer Holiday Homework
Session 2023-2024

Name: _____

S.No. : 1

Date: _____/ _05_____/ _2023_

Class: XI-A1,A2

Subject: Physics

class-XI (Physics)

Instruction-

1.Learn chapters that have been done in class .

2.Create a flow chart of at least 40 physical quantity including their dimension formula, unit and symbol on a chart paper using your creativity.

3.Make a collage /picture on a cartridge sheet of latest scientific research using your creativity and innovation.

4)Investigatory Projects- Physics (2023-24)

As per C.B.S.E. guidelines, all students have to prepare one Investigatory Project carrying 3 marks. All students are therefore, advised to prepare one Investigatory Project on any one of the following topics or any other topic of their choice based on concept of physics after consulting the teacher during the summer vacation.

5)complete the assignment and M.C.Q. in the assignment notebook .

POINTERS FOR MAKING PROJECT REPORT

The material should be placed and bound in the following order:

1. Top Sheet of transparent plastic -The top page of your report should carry the following information in printed form or handwritten in neat block letters:

Title of Project:

Name of Student:

Roll Number

Date of submission:

2. Aim of Project

3. Apparatus required

4. Principle/theory

5. construction with labeled diagram,

6. Working

7. Observations
8. calculations,
9. Result/ Conclusions
10. Applications,
11. Graphs if any,
12. References/bibliography
13. Back cover of plastic: may be opaque or transparent

List of Investigatory Projects

Instructions: Students are required to work on any one of the following topics and submit a project report which may be in form of a working model with report / project file handwritten.

1. Visible standing waves in Real World.
2. Physics of Guitar Strings
3. Drinking happy bird. How it works?
4. Develop computer programs that simulate study of physics.
5. Make and study soap bubbles that last for months (or even years!)
6. Make and study your own electrochemical cell.
7. Build a research-quality telescope at home and study its resolving and magnification power.

Note: Complete investigatory project and submit the same within one week after re opening of school i.e.by 7th of July.2023.

Topic: Unit1

GENERAL INSTRUCTIONS:

A: The numerical are based on application of theory content. Attempt them in your physics notebook as practice assignment.

B: Do all questions in sequence.

ASSIGNMENT 1

- 1) What is the relation between i) Light year and A.U ii) light year and parsec
 - 2) Density of air is 1.293 kg/m^3 . Express this value in cgs unit
 - 3) Which is bigger unit light year or parsec?
 - 4) What are the advantages of SI system of units?
 - 5) Show that (i) momentum & impulse (ii) pressure & stress (iii) Angular velocity and frequency (iv) angular momentum & Planck's constant (v) work & Energy have same dimensions
 - 6) Define some units for large and small lengths
 7. Calculate the angle of (i) 1° (ii) $1'$ (iii) $1''$ in radians.
 8. Classify the physical quantities on the basis of dimensions. Are all constants dimensionless?
- Comment.
9. The frequency of an oscillating drop may depend on the radius, density and the surface tension of the liquid. Deduce the formula dimensionally.
 10. The time period of a simple pendulum depends on the length of the pendulum and the acceleration due to gravity. Obtain the expression for the time period dimensionally.
 11. The velocity of the water waves depends on the wavelength density of the water and the Acceleration of the water due to gravity. Deduce by the method of dimensions the relationship between these quantities.
 12. A large star oscillates and the time period depends on the radius of the star, the density of the fluid and the gravitational constant G . Obtain the expression for the time period dimensionally.
 13. Check the correctness of the relation
 - a). $\lambda = h/mv$
 - b). $T = 2\pi l/g$

c). $F=mv/r$

14. Name the fundamental physical quantity whose SI unit has not changed since the inception of International system of units.

15. Write the dimensional formulae of (i) power (ii) surface tension.

16. Can a quantity have units but still be dimensionless?

17. Can a quantity have dimensions but still have no units?

18. Write 2 e.g. of non-dimensional variables.

19. Give the number of significant figures in (i) 0.270m (ii) 0.0027kg (iii) 27.00 (iv) 0.27×10^{-5} .