THE SMART STUDY NOTES
CLASS 9th New PHYSICS
Chapter 1: Physical Quantities and Measurements

LONG QUESTION

1. Calculate the number of seconds in a: (a) day (b) week (c) month and state your answers using SI prefixes.

2. Calculate the following and state your answer in scientific notation. (3 x 102 kg) x (4.0 km)/(5 x 102 s^2)

3. Identify and explain the reasons for human errors, random errors, and systematic errors in experiments.

4. Light year is a unit of distance used in Astronomy. It is the distance covered by light in one year.

Taking the speed of light as 3 X 10 ^ 4 ms ^ - 1 calculate the distance.

5. Discuss scientific notation with suitable examples.

6. Solve the following multiplication or division. State your answers in scientific notation. x (3 X 10 ^ - 2 m) (a) (5 X 10 ^ 4 m) b) 6 x 10 kg/(3 x 104 m^3)

7. Convert the following into scientific notation: (a) 0.00025 m (b) 4500000 kg

8. Calculate the number of seconds in a: (a) day (b) week (c) month and state your answers using SI prefixes.

9. Give three examples of derived units in SI. How are they derived from base units? Describe briefly.

10. Explain Micrometer Screw Gauge and its working principle.

11. Discuss different types of errors in measurement.

12. Discuss different time-measuring devices and their importance.

13. A cube has a side length of 4.2 cm. Calculate its volume in cm^3 and m^3.

14. Define base and derived quantities with at least four examples.

15. State the number of significant digits in each measurement. (a) 0.0045 m (b) 2.047 m (c) 3.40 m (d) 3.42 X 10 ^ 4 m

16. Express the density of mercury given as 13.6 g cm^3 in kg m^3.

17. Solve the following addition or subtraction. State your answers in scientific notation. (a) 4 X 10 ^ - 4 X 3 X 10 ^ - 5 kg (b) 5.4 X 10 ^ - 6 X m - 3.2 X 10 ^ - 5 m

18. A pendulum takes 35.4 seconds to complete 20 oscillations. Find the time period of one oscillation.

19. Write using correct prefixes: (a) 5 x 10 ^ 4 cm (b) 580 x 10 ^ 2 g (c) 45 x 10 ^ - 4

20. A Vernier Callipers gives a main scale reading of 3.4 cm and a Vernier scale reading of 6. Find the total reading if the least count is 0.01 cm.

21. State the similarities and differences between Vernier Callipers and a micrometer screw gauge.

22. The diameter of a wire is measured using a screw gauge as 0.86 mm. Convert it into meters.

23. Explain the importance of the SI system.

24. Differentiate between precision and accuracy of a measurement with examples.

25. What is meant by base and derived quantities? Give the names and symbols of SI base units.

26. Explain Vernier Callipers with the method of taking measurements.

27. Write in scientific notation: (a) 0.0035 m (b) 206.4 x 10 ^ 2 m

28. Explain precision and accuracy with examples.

29. What are physical and non-physical quantities? Explain with examples.

30. Explain how the volume of an irregular solid is measured.