SEMESTER-ONE

PHYSICS

Class X

Student Name: ..... **Date:** .....

Period–I : Topic 1

INTRODUCTION TO PHYSICS AND PROPERTIES OF MATTER

Multiple Choice Questions

Select and write one most appropriate option out of the four options given for each of the questions 1 – 5.

1. Which of the following ratios expresses acceleration?

(a) Velocity × Time (b) $\frac{\text{Velocity}}{\text{Time}}$

(c) Speed/Time (d) Speed × Time

2. The S.I. unit of mass is

(a) Kilogram (b) Gram

(c) Milligram (d) None of these

3. The number of significant figures in 0.02100 is

(a) 5 (b) 4

(c) 2 (d) 3

4. Which of the following is a vector quantity?

(a) Speed (b) Velocity

(c) Density (d) Power

5. Which of the following physical quantities represents the dimensional formula $[ML^{-3}T^{0}]$?

(a) Pressure (b) Velocity

(c) Density (d) None of these

WORKSHEET — 2

Fill in the Blanks

Fill in the blanks with a suitable word for each of the questions 1 – 5.

1. _____ are the physical quantities which are independent and are not defined in terms of other physical quantities.
2. _____ is standard unit for measuring mass.
3. _____ is comparison of an unknown quantity with some fixed quantity of the same kind.
4. The number of meaningful digits in a number is called the number of _____ .
5. _____ is the product of mass and the local gravitational acceleration (g).

True or False

State whether the following statements are true or false for each of the questions 1–5.

1. There are 172800 seconds in 2 days.
2. The difference in the magnitude of one main scale division (M.S.D) and one vernier scale division (V.S.D.) is called the least count of the instrument.
3. Spring balance is used to measure the weight or gravitational mass of a body.
4. The dimensional formula of force is $[M\ L^{-2}\ T]$.
5. Scalar quantities obey the ordinary law of algebra.

Theoretical and Numerical Type Questions

Answer each of the questions 1 – 5.

1. What do you mean by the term measurement?

_____

_____

_____

_____

2. Derive the dimensional formula of (a) Acceleration due to gravity (b) Density.

_____

_____

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3. Write the uses of dimensional analysis.

4. Assuming that the mass m of the largest stone that can be moved by a flowing river depends on the velocity v density ρ and acceleration due to gravity g. Show that m varies as the sixth power of the velocity of flow.

5. A screw gauge has a pitch of 1.0 mm and 200 divisions on the circular scale. Do you think it is possible to increase the accuracy of the screw gauge arbitrarily by increasing the number of divisions on the circular scale?

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