

Class: XI; Subject: Physics

1. Obtain the dimensions of k in the equation $W = 1/2 kx^2$ where W is work while x is change in length. **1**
2. A distance of 100 cm is measured using a metre scale of least count .01 cm; find the percentage error in the measurement. **1**

OR

Solve with due regard to significant figures $6.30 \times 10^{-3} + 4.2 \times 10^{-2}$

3. If $A = (12 \pm 0.1)$ cm and $B = (8.5 \pm 0.5)$ cm, find $(A+B)$? **1**
4. Give number of significant figures in the following. **1**
(A) .0007m² (B) 2.64×10^{36} L. (C) 0.2490 g/cm³ (D) 6.435 J
5. Following observations are taken for a 5 Litre capacity container. Find out which is the most accurate & most précised observation 4.98L, 5.1L, 5.010L, 4.78L, and 5.20L. **1**
6. The heat dissipated in a resistance can be determined from the relation $H=I^2RT$ calorie. If the maximum error in I, R & T are 2%, 1% & 1% respectively. What would be the maximum percentage error in the heat dissipated? **2**
7. A body covers 12 m in 2nd second & 20 m in 4th second. How much will it cover in 9th second? **2**

OR

A man swims In a river with and against water at the rate of 15 km/ hour and 5 km/hour respectively. Find the men's speed in still water and speed of the river.

8. Find the value of 60J on a system that has 100g, 100cm and 1 min as the fundamental units. **2**
9. Drive 1st & 2nd equations of motion by calculus-method. **3**

OR

A train moves with a speed of 30 km per hour in the first 15 minutes with 40 km per hour in the next 15 minutes and then with 60 km per hour in the last 30 minutes. Calculate the average speed of the train for this journey.

10. Draw the following graphs for an object projected upward with a velocity 50m, reach the highest point in time 5 sec and come back to the same point. **3**
(a) Acceleration-time (b) Speed-time (c) Velocity-time
11. An artificial satellite is revolving around a planet of mass "M" and radius "R" in a circular orbit of radius 'r'. Show using dimensional analysis $T = k/R \sqrt{r^3/g}$,
Where k is dimensionless constant and g is acceleration due to gravity. **3**