

VGR COACHING CENTER**CLASS-XI****PHYSICS****MARK-60****PART-A**

1. If $x = at + bt^2$ where x is in meters and t is in seconds. What are the units of a and b ?
a.(m, s) b.(s, m) c.(m/s, m/s²) d)(m/s,m/s)
2. The length of a body is measured as 3.51m, if the accuracy is 0.01mm, then the percentage error in the measurement is
a) 351% b) 1% c) 0.28% d) 0.035%
3. If $\pi = 3.14$, then the value of π^2 is
a) 9.8596 b) 9.860 c) 9.86 d) 9.9
4. Which of the following pairs of physical quantities have same dimension?
force and power b) torque and energy c) torque and power d) force and torque
5. If the length and time period of an oscillating pendulum have errors of 1% and 3% respectively then the error in measurement of acceleration due to gravity is
a. a) 4% b) 5% c) 6% d) 7%
6. Which of the following has the highest number of significant figures?
a) 0.007 m² b) 2.64x10²⁴kg c) 0.0006032 m² d) 6.3200 J
7. If the error in the measurement of radius is 2%, then the error in the determination of volume of the sphere will be
a) 8% b) 2% c) 4% d) 6%
8. The dimensional formula of Planck's constant h is
a) [ML²T⁻¹] b) [ML²T⁻³] c) [MLT⁻¹] d) [ML³T⁻³]
9. The density of a material in CGS system of units is 4 g cm⁻³. In a system of units in which unit of length is 10 cm and unit of mass is 100 g, then the value of density of material will be a) 0.04 b) 0.4 c) 40 d) 400
10.have the same dimensional formula
a.Force and momentum b) Stress and strain c) Density&linear density d) Work & potential

PART-B ANY 7

1. Name four units to measure extremely small distances.
2. What are random errors? How can we minimise these errors?
3. Distinguish : Fundamental units and derived units.
4. From a point on the ground, the top of a tree is seen to have an angle of elevation 60° . The distance between the tree and a point is 50 m. Calculate the height of the tree?
5. Write an Error in the sum of two quantities
6. Round off the following numbers as indicated
 - i) 18.35 up to 3 digits
 - ii) 19.45 up to 3 digits
 - iii) 101.55×106 up to 4 digits
 - iv) 248337 up to digits 3 digits
7. You are given a wire and a metre scale. How will you estimate the diameter of the wire?
8. Why dimensional methods are applicable only up to three quantities?

PART-C ANY 6

1. Write a note on triangulation method and radar method to measure larger distances
2. Write limitation of diemensional analysis
3. If velocity, time and force were chosen the basic quantities, find the dimensions of mass?
4. Write a rules for significant figures
5. Check the correctness of the equation $\frac{1}{2}mv^2 = mgh$ using dimensional analysis method.
6. The length and breadth of a rectangle are (5.7 ± 0.1) cm and (3.4 ± 0.2) cm respectively. Calculate the area of the rectangle with error limits.
7. State the number of significant figures in the following
 - i) 600800
 - ii) 400
 - iii) 0.007
 - iv) 5213.0
 - v) $2.65 \times 1024m$
 - vi) 0.0006032

PART-D ANY 4

1. In a series of successive measurements in an experiment, the readings of the period of oscillation of a simple pendulum were found to be 2.63s, 2.56 s, 2.42s, 2.71s and 2.80s. Calculate (i) the mean value of the period of oscillation (ii) the absolute error in each measurement (iii) the mean absolute error (iv) the relative error (v) the percentage error. Express the result in proper form.
2. Convert 76 cm of mercury pressure into Nm^{-2} using the method of dimensions.
3. Obtain an expression for the time period T of a simple pendulum. The time period T depends on (i) mass 'm' of the bob (ii) length 'l' of the pendulum and (iii) acceleration due to gravity g at the place where the pendulum is suspended. (Constant $k = 2\pi$)
4. Write short notes on the following.
 - a) Unit
 - b) Rounding – off
 - c) Dimensionless quantities
5. Explain in detail the various types of errors.

www.Padasalai.Net