

PERIODIC TEST-1 (2018-19)

Class -XI

Sub:-PHYSICS

Time:-90Min

M.M.-40

Q.1 Name a quantity which has unit but no dimension. [1]

Q.2 Name the scientist who discovered neutron. [1]

Q.3 Can displacement be greater than distance travelled by an object. Explain with reason . [2]

Q.4 Rest and motion are relative terms. Explain. [2]

Q.5 Find the dimensions of axb in the relation [2]

$$P = \frac{b-x}{at}, \text{ P is power, x is distance and t is time}$$

Q.6 Distinguish between speed and velocity. [2]

Q.7 Write the dimensional formula for the following quantities:-

(i) Gravitational constant (ii) Potential Energy (iii) Pressure [3]

Q.8 In the equation $y = a \sin(\omega t - kx)$ t is time and x is distance. Obtain dimensional formula for ω and k . [3]

Q.9 Define relative velocity of an object w.r.t. another. Draw position time graphs of two objects moving along a straight line, when their relative velocity is (i) zero (ii) non zero. [3]

Q.10 If the errors involved in the measurement of mass and length of one side of a cube are 4% and 3% respectively. What is the Maximum error in calculation of density of material of cube? [3]

Q.11 A body cover one third of its journey with a speed 'u', one third with speed 'v' and the last one third with speed 'w'. Calculate the average speed of the body during entire journey. [3]

Q.12 Convert 1 joule into erg by method of dimensions. [3]

Q.13 Derive the distance covered by a body in n th second . [3]

Q.14 Aditya goes to school with his sister megha in their own car The school is about 10 km from their home. They drive on alternate days. Aditya is very careful driver, but Megha is a rasher. She takes 3 minutes lesser than Aditya in reaching the school. Aditya advices Megha to drive safely, but she hardly listens. Read the above passage and answer the following questions. [4]

- (i) What values are displayed by Aditya? Do you agree with him?
- (ii) What is the difference between average speeds of Megha and Aditya if later takes 15 minutes to drive to the school.

Q.15 The frequency 'n' of vibration of a stretched string depends upon

- (i) its length 'l' (ii) its mass per unit length 'm' and (iii) tension 'T' in the string.

Obtain dimensionally the equation of frequency. [5]

Q.16 The displacement (in metre) of a particle moving along x-axis is given by $x = 18t + 5t^2$. Calculate [5]

- (i) The instantaneous velocity at $t = 3$ sec.
- (ii) Average velocity between $t = 2$ sec and $t = 4$ sec.
- (iii) Instantaneous acceleration.

Q.17 (a) Define (i) Absolute error (ii) Relative Error [3]

(iii) Instrumental error

(b) The resistance is given by $R = V/I$, where $V = (100 \pm 5)$ V and $I = (10 \pm 0.2)$ A. Find the percentage error in R. [2]