ATOMIC ENERGY EDUCATION SOCIETY
Distant Learning Programme
Class XI Subject: Physics
Work Sheet of Chapter: Unit & Measurement (Module 4/4)

1. Which of the following physical quantity has the dimensions of $[ML^2T^{-3}]$?

   (a) Work   (b) power

   (c) Pressure   (d) impulse

2. Dimensions $ML^{-1}T^{-1}$ are related to which physical quantity:

   (a) Work   (b) Torque

   (c) Energy   (d) Coefficient of viscosity

3. The dimensional formula for pressure gradient is

   (a) $[ML^2T^{-1}]$ (b) $[M^0L^2T^{-2}]$

   (c) $[M^{-2}L^{-2}T^0]$ (d) $[ML^{-2}T^{-2}]$

4. Torque has the same dimensions as those of

   (a) Force   (b) work   (c) kinetic energy   (d) both 'b' and 'c'

5. A force is given by: $F = a\,t + b\,t^2$ (where t is time). What are the dimensions of a and b?

   (a) $[MLT^{-3}]\ and\ [MLT^{-4}]$ (b) $[MLT^{-3}]and\ [MLT^{-2}]$

   (c) $[MLT^{-2}]and\ [MLT^0]$ (d) $[MLT^{-4}]\ and\ [MLT]$

6. If momentum (P), area (A) and time (T) are taken to be fundamental quantities, then what will be the dimensional formula of energy?

7. Find dimensions of a and b in relation $P = \dfrac{b - x^2}{at}$. P is power, x is distance and t is time.

8. Obtain dimensional formula for universal gravitational constant (G), Planck's constant (h) and universal gas constant (R).

9. Convert: Gravitational constant (G) = 6.67 x 10^{-11} Nm^2 kg^{-2} to dyne cm^2 gm^{-2} by dimensional analysis method.

10. Centripetal force acting on any particle moving in circular path depends on its mass (m), velocity (v) and radius of circular path(r), Establish dimensionally for relation of centripetal force.