**SUMMER HOLIDAY HOMEWORK**

CLASS: 11

SUB: PHYSICS

COMPETENCY BASED QUESTIONS

CHAPTER: UNITS AND MEASUREMENTS

N.B: **The HW should be done in Physics notebook**

1. The equation of a plane progressive wave is given by the equation y = A sin(*w*t – kx), where x and t stands for distance and time respectively. Obtain the dimensions of *w* and k.
2. A gas bubble from an explosion under water oscillates with a period T proportional to

 padbEc, where p is the static pressure, d is the density of water, and E is the total energy of the explosion. Find the value of a, b, c.

1. What are the dimensions of a and b in the relation F = at + bx, where F is force and x is distance.
2. Justify [L] + [L] = [L] and [L] – [L] = [L].
3. If pressure P, velocity v and time T are taken as fundamental physical quantities, find the dimensional formula for force.
4. If momentum p, area A and time T are taken as fundamental quantities, find the dimensional formula of energy.
5. If x = a (cos θ + θ sin θ) and y = (sin θ – θ cos θ), find .
6. The area A of a blot of ink is growing such that after t second A = 3t2 + + 7. Calculate the rate of increase of area after 5 second.
7. If s = 2t3 – 3t2 + 2, find the position, velocity and acceleration of a particle at the end of 2 second, s is measured in metre and t in second.
8. If y = u3 + 2u and u = x + 1, then find .

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