Answer any one :-

1. Solve: $\dfrac{dx}{x^2+y^2+yz} = \dfrac{dy}{x^2+y^2-xz} = \dfrac{dz}{z(x+y)}$

2. Solve $(x^2 + y^2 + z^2)dx + 2xy\ dy - 2xz\ dz = 0$

3. Let t_1 and t_2 be the periods of vertical oscillations of two different weights suspended by an elastic string and $c_1\ and\ c_2$ be the statistical extensions due to these weights, prove that $g(t_1{}^2 - t_2{}^2) = 4\pi(c_1 - c_2)$.