

## FORMULA LIST.

Rate of change of a quantity 'a' wot 'b' is:

$$= \frac{da}{db}$$

① Area of circle =  $A = \pi r^2$

Rate of change of area of circle =  $\frac{dA}{dt} = 2\pi r \frac{dr}{dt}$

② Volume of Sphere =  $V = \frac{4}{3} \pi r^3$

Rate of change of volume of sphere =  $\frac{dV}{dt} = 4\pi r^2 \frac{dr}{dt}$

③ Vol. of cylinder =  $\pi r^2 h$

Rate of change of vol. of cylinder =  $\pi r^2 \frac{dh}{dt} + 2\pi r h \frac{dr}{dt}$