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SUBJECT:- PHYSICS

CLASS:-IXTH

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SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION) (BASED ON NCERT PATTERN)(REVISION)

Q1. Why will a sheet of paper fall slower than one that is crumpled into a ball?

Ans. A sheet of paper has larger surface area and while falling down it has to overcome the force exerted by air/wind. current, called as air resistance.

The crumpled paper has smaller surface area and it has to overcome very less amount of air current.

Q2. Gravitational force on the surface of the moon is only 1/6 as strong as gravitational force on the earth. What is the weight in Newtons of a 10 kg object on the moon and on the earth?

Ans. Mass of the object = 10 kg

Weight of the object on earth = $W = m \times g$

$$\therefore W = 10 \times 9.8, W = 98 \text{ N}$$

Weight of the object on moon = $\frac{1}{6}$ th the weight on the earth.

As the gravitational force on the surface of the moon is only $\frac{1}{6}$ th as strong as gravitational force on the surface of the earth.

$$\therefore \text{Weight of the object on moon} = \frac{98}{6} = 16.3 \text{ N}$$

Weight on earth = 98 N, Weight on moon = 16.3 N

Q3. A stone is released from the top of a tower of height 19.6 m. Calculate its final velocity just before touching the ground?

Ans. Data $u = 0 \text{ m/s}$, $v = ?$, $h = s = 19.6 \text{ m}$, $g = 9.8 \text{ m/s}^2$ (falling down)

$$v^2 - u^2 = 2gs$$

$$v^2 - (0)^2 = 2 \times 9.8 \times 19.6$$

$$v = 19.6 \text{ m/s}$$

The final velocity just before touching the ground is 19.6 m/s.