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SUBJECT:- PHYSICS CLASS:- IXTH DATE:30/06/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION)

Question 38:

A piece of stone is thrown vertically upwards. It reaches the maximum height in 3 seconds. If the acceleration of the stone be 9.8 m/s^2 directed towards the ground, calculate the initial velocity of the stone with which it is thrown upwards

Solution :

Initial velocity of the stone, u=?
Final velocity of stone, v=0
Acceleration due to gravity, g= -9.8m/s^2
Time, t=3 sec
Using relation, v=u + gt
0 = u -9.8 x 3
u =29.4m/s

Question 39:

A stone falls from a building and reaches the ground 2.5 seconds later. How high is the building ? (g =8 m/s^2)

Solution :

Initial velocity, u=0m/s
Acceleration due to gravity, g=9.8m/s^2
Time taken to reach the ground, t=2.5 sec , Height, h=? Using relation,

Initial velocity, u=0m/s
Acceleration due to gravity, g=9.8m/s^2
Time taken to reach the ground, t=2.5 sec
Height, h=?
Using relation,

$$s = u\,t + \frac{1}{2}gt^2$$

$$s = 0 \times 2.5 + \frac{1}{2} \times 9.8 \times 2.5 \times 2.5$$

$$s = 0 + 4.9 \times 2.5 \times 2.5$$

$$s = 30.625\ m$$