

Question

A bullet is straight upward with a velocity of 100 m/s from the top of a building 100m high .Find its maximum height above the ground?

- a)500 m
- b)600 m
- c)1000 m
- d)300 m

Solution

$h_0 = 100 \text{ m}; v_0 = 100 \text{ m/s}.$

$$OY: y = h_0 + v_0 t - \frac{gt^2}{2};$$

$$0 = v_0 - gt_m; t_m = \frac{v_0}{g} = 10 \text{ s};$$

$$h_{max} = h_0 + v_0 t_m - \frac{gt_m^2}{2};$$

$$h_{max} = 100 + 100 \cdot 10 - 10 \cdot 10^2 / 2 = 600 \text{ m}$$

Answer:b) $h_{max} = 600 \text{ m}$

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