2019 Ph H1 Q3

Section: Our Dynamic Universe
Topic: Motion – Velocity Components

Question Summary

A golf ball follows a projectile path.
From the graphs of v_h and v_v against time, determine the **speed** just before hitting the ground.

✅ Final Answer:

D. 50 m s⁻¹

Working

- Horizontal velocity $v_h = 40\,\text{ms}$ (constant).
- Vertical velocity just before impact $v_v = -30\,\text{ms}$.
- Speed
  $v = \sqrt{v_h^2 + v_v^2} = \sqrt{40^2 + 30^2} = \sqrt{1600 + 900} = \sqrt{2500} = 50\,\text{ms}$.

Quick Tips

- Treat v_h and v_v as perpendicular components.
- Use Pythagoras: $v = \sqrt{v_h^2 + v_v^2}$.