

- 4 A student measures the time taken for a steel ball bearing to fall a measured distance in air. The student uses these measurements to determine the acceleration due to gravity.

Which of the following conditions is needed to determine an accurate value for the acceleration due to gravity?

- ☐ A The air flow around the ball bearing should be laminar.
- ☐ B The time taken to achieve terminal velocity should be short.
- ☐ C The ball bearing should begin to fall before the timer is started.
- ☐ D Air resistance and upthrust should both be negligible.

(Total for Question 4 = 1 mark)