Unit 3: Chemical bonding

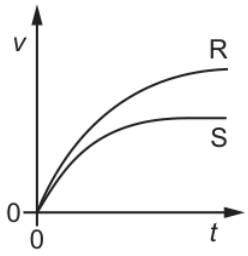
Subunit 3.2: Ionic bonding

Topical Question No: 1

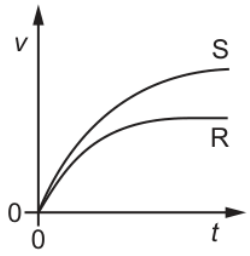
9 A stone S and a foam rubber ball R are identical spheres of equal volume. They are released from rest at time $t = 0$ and fall vertically through the air. Both reach terminal velocity.

Which graph best shows the variation with time t of the speed v of the stone and of the rubber ball?

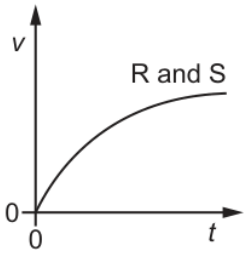
A



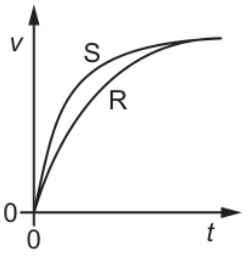
B



C



D



Topical Question No: 2

7 A solid object of mass 1.0 kg falls vertically downwards in a vacuum.

When the speed of the object is 60 m s^{-1}, an additional constant force of 50 N suddenly starts to act vertically upwards on the object.

What is the speed of the object 2.0 s after the additional force starts to act?

A 20 m s^{-1} **B** 40 m s^{-1} **C** 80 m s^{-1} **D** 100 m s^{-1}

10 A parachutist falls from rest from a balloon. The variation with time of the vertical velocity of the parachutist is shown.

In which region is the force due to air resistance much greater than the weight of the parachutist?