

- 17** In many old-style filament lamps, as much as 92 J of energy is emitted as thermal energy for every 8 J of energy emitted as light.

What is the efficiency of the lamp, as the percentage of electrical energy converted to light energy?

- A** 8%                      **B** 9%                      **C** 91%                      **D** 92%

- 18** What is the unit of power in SI base units?

- A**  $\text{kg ms}^{-2}$               **B**  $\text{kg ms}^{-3}$               **C**  $\text{kg m}^2 \text{s}^{-2}$               **D**  $\text{kg m}^2 \text{s}^{-3}$

- 19** In an experiment to demonstrate Brownian motion, smoke particles in a container are illuminated by a strong light source and observed through a microscope.

The particles are seen as small specks of light that are in motion.

What causes the Brownian motion?

- A** collisions between the smoke particles and air molecules  
**B** collisions between the smoke particles and the walls of the container  
**C** convection currents within the air as it is warmed by the light source  
**D** kinetic energy gained by the smoke particles on absorption of light

**Space for working**