

- 11** The Hubble telescope in outer space is used to detect light emitted from different regions of galaxy. In one region thought to be centre of the galaxy, astronomers have studied the characteristics of this light and determined that the orbiting speed is $7.5 \times 10^5 \text{ m s}^{-1}$ for matter located at a distance of $5.7 \times 10^{17} \text{ m}$ from the centre of the galaxy.

What is the mass of the body located at the galactic centre?

- A** $6.0 \times 10^{24} \text{ kg}$
- B** $1.9 \times 10^{27} \text{ kg}$
- C** $4.5 \times 10^{32} \text{ kg}$
- D** $4.8 \times 10^{39} \text{ kg}$