

14 Satellites A and B of masses m and $2m$ are placed in geostationary orbits of radii r_A and r_B about the Earth, where the radii are measured from the centre of the Earth to the respective satellites. Which of the following statements is correct?

- A** The radii r_A and r_B are the same.
- B** Both satellites have the same centripetal force.
- C** Both satellites have the same total energy.
- D** Both satellites have the same gravitational force.

15 The escape speed of an oxygen molecule at the Earth's surface is $1.1 \times 10^4 \text{ m s}^{-1}$. What is the