(b) : A : Time period, $T = 2\pi\sqrt{\frac{L}{g}} = 2\pi\sqrt{\frac{LR^2}{GM}}$

$$T' = 2\pi\sqrt{\frac{L \times 4R^2}{G \times 4M}} = 2\pi\sqrt{\frac{LR^2}{GM}}$$

So, assertion is true.

R : Mass remains constant, as it is independent of acceleration due to gravity.

So, reason is also correct but not the correct explanation of assertion.