**Q 04**

A satellite is in an elliptical orbit around a planet P. It is observed that the velocity of the satellite when it is farthest from the planet is 6 times less than that when it is closest to the planet. The ratio of distances between the satellite and the planet at closest and farthest points is :

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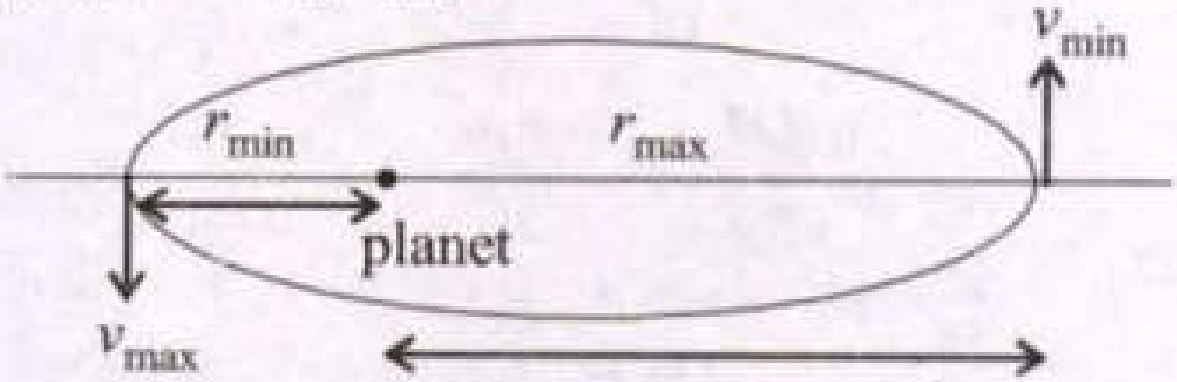
(a) 1 : 6 (b) 1 : 3 (c) 1 : 2 (d) 3 : 4

**(a)** By angular momentum conservation

$$mr_{min}v_{max} = mr_{max}v_{min}$$




Given, $v_{min} = \frac{v_{max}}{6}$ $\therefore \frac{r_{min}}{r_{max}} = \frac{v_{min}}{v_{max}} = \frac{1}{6}$