The Relationship Between Weight, Universal Gravitation and Centripetal Force: Understanding the Mechanics of Planetary Motion

Solve the following problems in the spaces provided. Show all work. Be mindful of proper problem-solving practices and procedures.

I. A satellite with a mass of 3.00 x 10^2 kg is to be put into an Earth orbit very near sealevel. Compute

       a. the orbital speed of the satellite [in m/s] and

       b. the orbital period of the satellite [in s and in h].

II. Suppose the same satellite in I is lifted into a geosynchronous orbit over a fixed point on the Equator. Compute

    a. the orbital period of the satellite [in s] and

    b. the orbital radius of the satellite [in m and km]