2

(a)

State Newton's Law of Gravitation.

……....

…… [1]

(b)

A geostationary satellite is placed in orbit around the Earth.

Explain why any satellite must be above the equator.

(ii)

Given that the mass of the Earth is 6.0×10^{24} kg and the radius of the Earth is 6.4×10^{6} m,

……

……..

…… [2]

1.

show that the altitude of the satellite above the surface of the Earth is 3.6×10^7 m,

[4]

2.

calculate the linear speed of the satellite.

linear speed = …… m s^{-1}

[2]

[Total: 9]