2 **(a)** State Newton's Law of Gravitation.

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…… [1]

(b) Explain why it is incorrect to term g (= 9.81 N kg^{-1}) as 'gravity'.

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…… [2]

(c) Determine the Earth's gravitational field strength at a height of 0.12 x 10^6 m above the Earth's surface. The Earth's radius is taken to be 6.38 x 10^6 m.

gravitational field strength = …….. N kg^{-1} [3]

(d) Explain briefly why an astronaut in a satellite orbiting the Earth at this altitude may be described as weightless.

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…… [2]

(e) Explain why the magnitude of the apparent weight of a person is smaller at the equator than at the poles.

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…… [2]