2 **(a)** A body travelling at a constant speed in a circular path experience centripetal acceleration. Using Newton's laws of motion explain why there is acceleration although the speed is constant.

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.....[2]

(b) A car of mass 1500 kg travels in a horizontal circular path of radius 50.0 m on a banked road with speed of 15.0 m s^{-1} without any frictional force acting on the tyres along the slope.

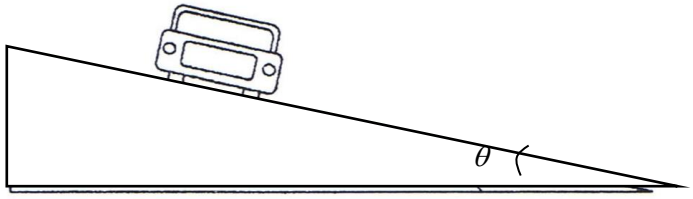

Fig. 2.1

(i) Calculate the angle θ at which the road is banked.

θ = ...° [3]

(ii) Explain how friction force enables the car to travel in the same horizontal circular path at a lower speed.

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.....[2]

[Total: 7]