

國立彰化師範大學 98 學年度碩士班招生考試試題

系所：車輛科技研究所

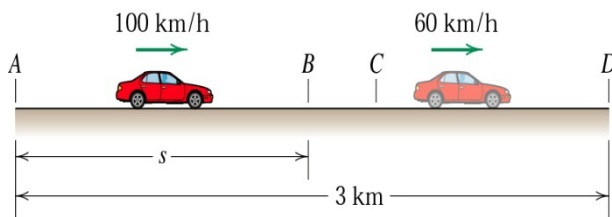
科目：(乙) 動力學

☆☆請在答案紙上作答☆☆

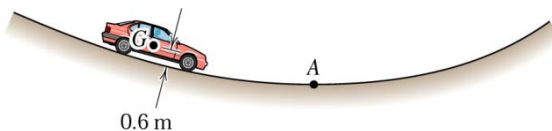
共 2 頁，第 1 頁

每題各 20 分(得攜帶計算器)

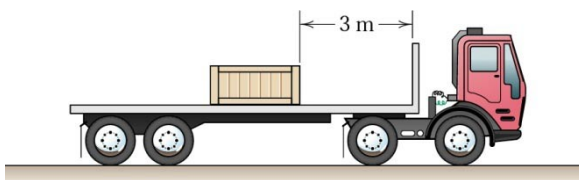
1. In traveling a distance of 3 km between points A and D , a car is driven at 100 km/h from A to B for t seconds and 60 km/h from C to D also for t seconds. If the brakes are applied for 4 seconds between B and C to give the car a uniform deceleration, calculate t and the distance s between A and B .



2. The car passes through a dip in the road at A with a constant speed which gives its mass center G an acceleration equal to $0.5g$. If the radius of curvature of the road at A is 100 m, and if the distance from the road to the mass center G of the car is 0.6 m, determine the speed v of the car.



3. The coefficient of static friction between the flat bed of the truck and the crate it carries is 0.30. Determine the minimum stopping distance s which the truck can have from a speed of 70 km/h with constant deceleration if the crate is not to slip forward.



國立彰化師範大學 98 學年度碩士班招生考試試題

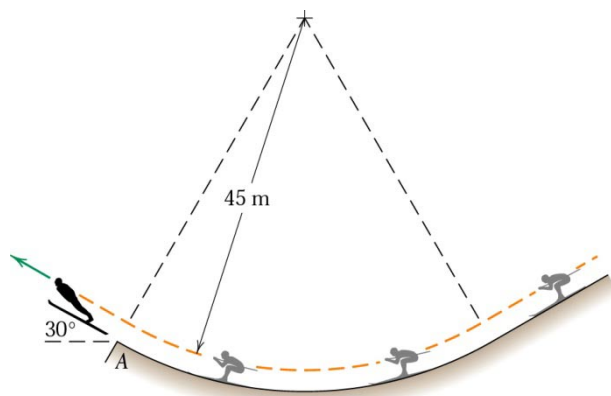
系所：車輛科技研究所

科目：(乙) 動力學

☆☆請在答案紙上作答☆☆

共 2 頁，第 2 頁

4. If the 80 kg ski-jumper attains a speed of 25 m/s as he approaches the takeoff position, calculate the magnitude N of the normal force exerted by the snow on his skis just before he reaches A .



5. The car of mass m accelerates on a level road under the action of the driving force F from a speed v_1 to a higher speed v_2 in a distance s . If the engine develops a constant power output P , determine v_2 . Treat the car as a particle under the action of the single horizontal force F .

