5. (a) An airplane flying horizontally with a constant speed of 540 km h^{-1} at a height of 1200 m fires a projectile horizontally in its direction of motion at a speed of u ms^{-1} relative to the plane. At this instant, a vehicle is at a point on the ground d km horizontally from the airplane. The vehicle is moving with a constant speed of 40 ms^{-1} on a horizontal road in the direction of motion of the plane. What must be the minimum value of d so that the projectile will hit the vehicle? If, at the instant when the projectile is fired, the value of d is 5 times its minimum value, what is the speed of the projectile when it hits the vehicle? [7 marks]