5 A driver of a car sees an obstruction in the road ahead and must stop the car.

(a) (i) State the formula linking average speed, distance travelled and time taken.

(1)

(ii) A car travels at 21 m / s.

The driver's reaction time is 0.14 seconds.

Calculate the distance travelled by the car during the driver's reaction time.

(2)

distance = ... m

(b) The car experiences a braking force of 7600 N.

The car has a mass of 1200 kg.

(i) State the formula linking force, mass and acceleration.

(1)

(ii) Calculate the acceleration of the car.

(2)

acceleration = ... m / s^2

(iii) Calculate the braking distance travelled as the speed of the car is reduced from 21 m / s to 0 m / s.

(3)

distance = ... m

(Total for Question 5 = 9 marks)