2 An object P of mass 400 g of initial speed 5.0 m s^{-1} travels towards a stationary object Q and undergoes an elastic collision with it. After the collision, object P rebounds in the opposite direction with a speed of 0.40 m s^{-1}.

(a) State the *principle of conservation of linear momentum*.

.....

.....

……..... [2]

(b) State what is meant by an *elastic collision*.

.....

……..... [1]

(c) Calculate the momentum of object Q after the collision.

momentum = ……. kg m s^{-1} [2]

(d) Hence, determine the mass and velocity of object Q.

mass = ……. kg

velocity = ……..……. m s^{-1} [2]

(e) Given that P and Q were in contact over a time of 60 ms, determine the average force exerted by P on Q.

force = …… N [1]