1. A particle P of mass 0.3 kg is moving with velocity $5\mathbf{i}\ \text{m s}^{-1}$

The particle receives an impulse $\mathbf{I}$ N s.

Immediately after receiving the impulse, the velocity of P is $(7\mathbf{i} + 7\mathbf{j})\ \text{m s}^{-1}$

(a) Find the magnitude of $\mathbf{I}$

(4)

(b) Find the angle between the direction of $\mathbf{I}$ and the direction of motion of P immediately before receiving the impulse.

(3)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 1 continued

(Total for Question 1 = 7 marks)