1. a) Impulse is defined as   Impulse $= F \, \Delta t$

We are given both the force and the time interval during which it acts, so the calculation is simply

$$\text{Impulse} = (100 \text{ N}) (0.02 \text{ s}) = 2 \text{ N s}$$

b) The impulse / momentum theorem tells us that the impulse is equal to the change in momentum. Therefore the change in momentum is 2 N s.