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SECTION B

Answer ALL questions in the spaces provided.

11 A railway carriage of mass 7.15×10^4 kg moving at $4.50\,m\,s^{-1}$ collides with a second railway carriage of mass 5.35×10^4 kg moving in the same direction.

The carriages join together. Immediately after the collision they move at a speed of $3.62\,m\,s^{-1}$.

(a) Show that the total momentum of the carriages immediately after the collision was approximately $4.5 \times 10^5\,kg\,m\,s^{-1}$.

(2)

(b) Calculate the velocity of the second carriage before the collision.

(2)

Velocity of second carriage = ...

(c) Calculate the change in total kinetic energy during the collision.

(2)

Change in total kinetic energy = ...

(Total for Question 11 = 6 marks)