1 **(a)** The diameter of a marble is measured using a vernier calliper and three sets of measurements are obtained as shown in Table 1.1. The true value of the diameter of the marble is 1.52 cm.

Table 1.1

	diameter of marble / cm				
Set A	1.52	1.49	1.43	1.52	1.55
Set B	1.42	1.45	1.43	1.51	1.58
Set C	1.45	1.56	1.47	1.53	1.46

(i) State and explain which set of measurements is the most precise. [2]

…………………………………………………………………………………………………..

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…………………………………………………………………………………………………..

(ii) State and explain which set of measurements is the most accurate. [2]

……………………………………………………………………………………………….….

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(b) Two cars A and B are travelling on a straight level road. Car A is 500 m ahead of Car B at t = 0 s. The velocity-time graph for cars A and B in the first 15 s are shown in Fig. 1.2 below.

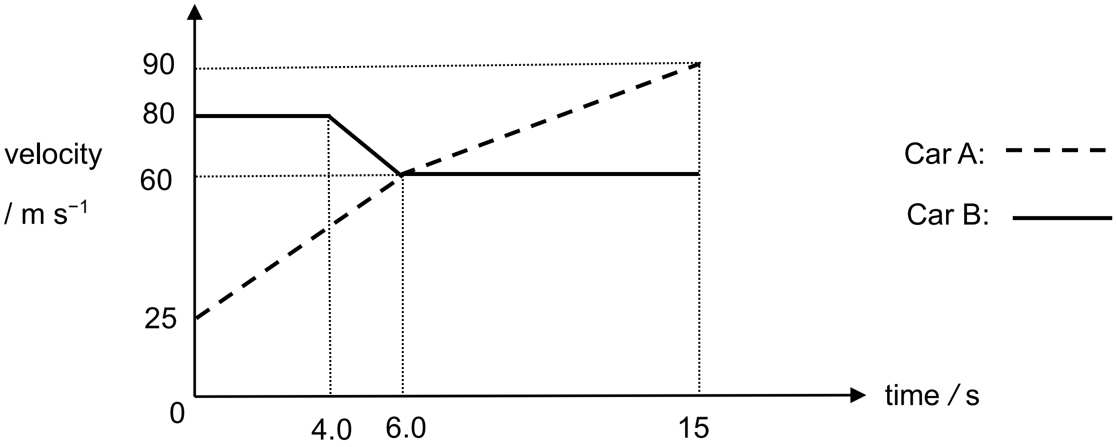

Fig. 1.2

(i) Sketch the corresponding displacement-time graph and acceleration-time graph of **car B** in the graphs provided in Fig. 1.3.

For the displacement-time graph, label the displacement at 15 s on the axis.
For the acceleration-time graph, label all accelerations on the axis.

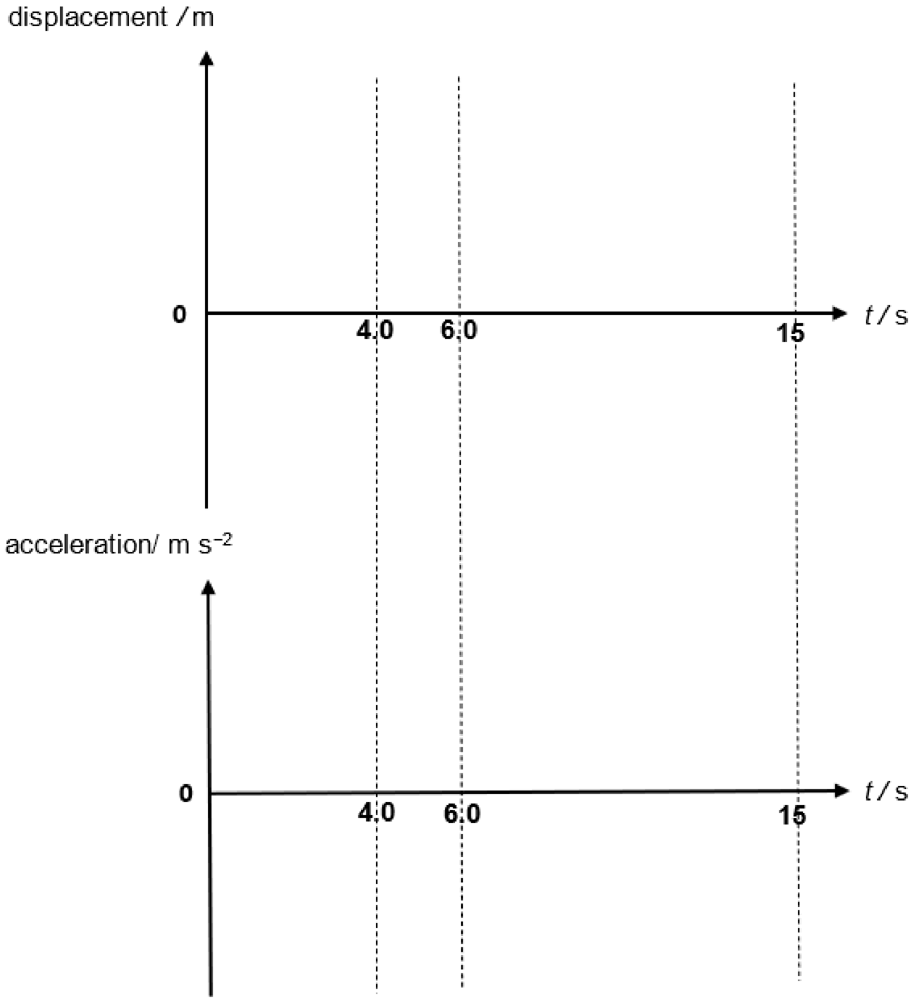

Fig. 1.3

[2]

(ii) Find the minimum distance between the two cars within the first 15 s.

distance = …………………… m [3]

[Total: 9]