Commentary on candidate responses

The candidate evidence has achieved the following marks for each question of this course assessment component.

Question /Response	Mark	Commentary
Q4	**3**	**1 – limited 2 – reasonable 3 – good**
Response 1	**1**	The candidate has shown a limited understanding of the physics involved, with an awareness of air friction and the ballistic nature of the stunt car in flight.
Response 2	**2**	The scope of the candidate's response is reasonable, making the assumption that the lorries are not travelling with the same constant speed, and stating the data necessary to calculate the variable distance between them.
Response 3	**2**	The candidate's comments show a reasonable understanding of the physics involved, making the assumption that the lorries are travelling with the same constant speed and realising the need, both for the car to have a speed greater than this to reach the first lorry, and for the car to decelerate on landing on the second lorry.
Response 4	**1**	The candidate's comments show a limited understanding of the physics involved, realising the need for the lorries to be travelling at the same constant speed for a constant gap size to be maintained, for the car to be travelling at a greater speed, and for air resistance to be taken into account.
Response 5	**1**	The candidate has commented on the need for the stunt driver to control the speed of the car, and on the need for the driver of the lorries to maintain the same constant speed in a straight line to maintain a constant gap size. These comments demonstrate a limited, but not quite a reasonable, understanding.
Response 6	**1**	The candidate is aware of the need to take account of frictional forces in planning the velocities of the car and lorries, and of the need for the car to have the same final velocity (relative to the ground presumably) as the second lorry for a successful stunt, showing a limited understanding of the physics involved.
Response 7	**1**	The candidate is aware of the possibility of an 'overshoot', and of the need to account for air resistance, showing a limited understanding of the physics involved.
Response 8	**2**	The candidate has explained the need for the car to be travelling faster than the lorries, and the need for the lorries to be travelling at a constant speed in a straight line, showing a reasonable understanding of the physics involved.
Response 9	**3**	The candidate has shown an awareness of a number of aspects of the given context, including the ballistic nature of the car in flight, the

Question /Response	Mark	Commentary
		speed of the car relative to the lorries, and the forces experienced on impact, showing a good understanding of the physics involved.
Response 10	**0**	The candidate has not quite shown a limited understanding of the physics involved.
Response 11	**0**	The candidate has stated a number of relationships, but has not sufficiently related these to the given context or shown even a limited understanding of the physics involved.
Response 12	**3**	The candidate's response concentrates on the car as a projectile, but does so in sufficient depth to demonstrate a good understanding of the physics involved.
Q6 (c)	**3**	**1 – limited 2 – reasonable 3 – good**
Response 1	**1**	The candidate's response demonstrates a limited understanding of the physics involved, comparing the shape of the tracks, and the nature of the collisions.
Response 2	**1**	Again, the candidate's response demonstrates a limited understanding of the physics involved, comparing the nature of the collisions.
Response 3	**2**	The candidate has made a number of points, comparing how acceleration is achieved, and the possibility of the model being refined to collisions between two balls. Overall, it was felt that the understanding of the physics demonstrated was reasonable rather than limited.
Response 4	**2**	The candidate has compared various aspects, including the travel medium, means of acceleration and the collisions, demonstrating a reasonable understanding of the physics involved.
Response 5	**3**	The candidate shows good knowledge of the working of a particle accelerator, and contrasts and compares a number of aspects with the model, showing a good understanding of the physics involved.
Response 6	**0**	Although showing a little knowledge, the candidate's response does not demonstrate even a limited understanding of the physics involved.
Response 7	**1**	The candidate is aware that the track is modelling the magnetic field in a particle accelerator, showing a limited understanding of the physics involved.
Response 8	**1**	The candidate's response mainly concentrates on the working of a particle accelerator and does not comment in great detail on the model, demonstrating a limited understanding of the physics involved.
Response 9	**2**	The candidate's response compares the model with a particle accelerator, highlighting similarities and differences, showing a reasonable understanding of the physics involved.
Response 10	**0**	The candidate's response does not demonstrate even a limited understanding of the physics involved.

Question /Response	Mark	Commentary
Response 11	**1**	The candidate's comparison of the model with a particle accelerator is very basic and shows just a limited understanding of the physics involved.
Response 12	**0**	The candidate's response does not demonstrate even a limited understanding of the physics involved.
Response 13	**2**	The candidate has compared a number of aspects of the model with a particle accelerator, and demonstrates a very reasonable understanding of the physics involved.
Response 14	**3**	As the previous response, the candidate has compared a number of aspects of the model with a particle accelerator, and demonstrates a very good understanding of the physics involved.