Commentary on candidate evidence

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

Question 7

Response 1

The candidate was awarded **3 marks.**

The constant of integration was ignored by the candidate. The value of this constant was zero in this question. Although the candidate's final answer appears correct, mark 2 could not be awarded.

Question 8(b)

Response 2

The candidate was awarded **2 marks.**

The candidate chose to use the original expression and not the form proved in part (a). They showed the correct use of partial fractions, gaining mark 1. Mark 2 was not awarded. Mark 3 could be awarded but mark 4 could not due to initial error.

Response 3

The candidate was awarded **3 marks.**

The candidate was not awarded mark 2 because line 2 shows a misunderstanding with the use of partial fractions. However, in this case mark 4 could be awarded.

Question 15(b)

Response 4

The candidate was awarded **3 marks.**

Marks 1 and 2 were awarded for correctly setting up and solving the auxiliary equation. Mark 3 could not be awarded as the candidate did not understand this to lead to a general solution involving the variables x and t. Mark 4 could be awarded for correct use of an initial condition but no further marks could be gained from subsequent work.

Question 9(a)

Three responses have been included for this question as this proved very demanding for many candidates. Either friction was ignored or motion in two perpendicular directions was not considered.

Response 5

The candidate was awarded **4 marks.**

Friction was ignored in this solution, thus significantly easing the solution. For this reason, marks 1 and 2 were not awarded. Follow through allowed the remaining marks to be given.

Response 6

The candidate was awarded **4 marks.**

This is an example of the frequent mistake made in answering this type of question. Candidates take equilibrium perpendicular to the slope and then motion in a horizontal circle. Marks 1 and 2 were awarded but not mark 3. Marks 4 and 5 were given. By not answering the actual question asked, mark 6 was not awarded.

Response 7

The candidate was awarded **2 marks.**

This response is very similar to the previous one, but in this example a careless mistake was also made, so none of the first 4 marks were awarded. However, with follow through, marks 5 and 6 were given.

Question 12

Response 8

The candidate was awarded **2 marks** for 12(a), **0 marks** for 12(b)(i) and **4 marks** for 12(b)(ii).

This example was included to show how we can accept a diagram as evidence for awarding marks. Part (c) is correct follow through from part (a) and receives full marks.

Response 9

The candidate was awarded **3 marks** for 12(a), **1 mark** for 12(b)(i) and **2 marks** for 12(b)(ii).

It was pleasing to see the occasional candidate handle bearings appropriately in their answer to 12(a).

In 12(b)(ii) the candidate does not draw a correct diagram. Neither do they show a calculation for an angle. Marks 1 and 2 cannot be awarded. Follow through is correct allowing for marks 3 and 4 to be allocated.

12(b) of this question was Grade A/B.

Question 14

The algebra required in this question proved very demanding for many candidates but the Marking Instructions allowed for most to gain 3 or 4 of the seven marks awarded. This question was Grade A/B.

Response 10

The candidate was awarded **5 marks.**

The candidate clearly understood the principles of the question and could gain marks 1-5 easily. However, the necessary simplification was not made.

Response 11

The candidate was awarded **2 marks.**

The effect of weight on the slope has been ignored in both situations. Mark 1 and mark 2 cannot be awarded but mark 3 is awarded because of repeated error. An attempt to rearrange for μ has been made and 1 mark was awarded for this.

Response 12

The candidate was awarded **3 marks**.

This example is included as the candidate appears to have completed the solution correctly but when we work through the evidence only marks 1, 2 and 6 can be awarded.

Response 13

The candidate was awarded **7 marks.**

This is a most unusual solution. For P, the candidate considers equilibrium along and perpendicular to the slope. When dealing with Q, they choose vertical and horizontal components. Everything is correct and the algebra is also correct leading to a perfect solution.