



## **STEP II, 2011, Q10 EC**

**Q10** This was the second most popular of the mechanics questions. The first couple of parts to the question were fairly routine in nature, but then the algebra proved too demanding in many cases, principally when it came to dealing with a quadratic equation in  $t$  which had non-numerical coefficients. Candidates also found it a struggle to know when to use  $g$  and  $H$  instead of  $u$  and  $\theta$  in the working that followed. A good number of candidates understood the nature of the problem as the two particles rose and fell together, although it transpired (unexpectedly) that there was another difficult obstacle to grasp in working with two distances. Even amongst essentially fully correct solutions, very few indeed arrived at the correct final answer for  $\tan \theta$ .



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