STEP III 2010 Question 11 — Examiner Report

Slightly fewer attempted this than question 9, and this question was least well scored upon of any on the paper. Generally, candidates got through part (i) successfully and then either gave up or got right through the question. Common errors were the misapplication of conservation of momentum, failure to distinguish directions which led to negative signs which were then mis-handled to obtain the quoted answer in (i), and even strong candidates failing to appreciate that acceleration was constant making the later parts all susceptible to constant acceleration formulae and thus not requiring less direct approaches. The brief description at the end was usually restricted to only trivially considering the block, and few gave any thought to the bullet.