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General Certificate of Education

Mathematics 6360

MM05 Mechanics 5

Report on the Examination

2008 examination - June series

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General

The standard of work was very high, with many excellent scripts, and, overall, sound coverage of the topics on the specification. Algebraic and arithmetic manipulation were also very good, and it was refreshing to see a variety of approaches and methods used.

Question 1

This question was answered well, with highly accurate and clearly set out responses. The majority of candidates scored full marks.

Question 2

Again, this question was answered well, with candidates showing good knowledge and understanding of this topic. The appropriate techniques were usually applied efficiently to produce correct solutions.

Question 3

This question was also popular, mostly with careful and accurate use of the relevant equations governing the motion. There were a few errors in differentiation and algebraic work, and occasionally an inappropriate choice of components in part (c).

Question 4

This question was less well done. In particular, part (a) proved very challenging, with fully correct responses in the minority. The most serious error was the omission of the gravity term. In part (b), the printed result was sometimes obtained erroneously, without the inclusion of a constant of integration or any equivalent technique. Part (c) was done well by many, but some failed to appreciate the two separate stages of the motion.

Question 5

Part (a) was completed successfully by most candidates. Part (b) was often successfully answered, with a common error being the omission of the weight and an incorrect expression for the tension in the general position; often these two errors cancelled each other out in subsequent working, leading to an apparently correct solution. The main error in part (c) was to stop work having found the full general solution and not to evaluate the remaining constants. Part (d) was not answered well.

Question 6

This question was well done, with, in part (a) in particular, an efficient use of a range of trigonometrical techniques to obtain the required expression. Part (b) generated further sound work, the only disappointment being the use of degrees in solutions. Part (c) was also done well, although there was a tendency for expressions for the second derivative to lose the mga term and become solely functions of the angle θ.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.