Pearson

Examiners' Report
October 2025

International Advanced Leve in Mechanics M2

WME02/01A

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

October 2025
Question Paper Log Number P87439A
Publication Code WME02_01A_2510_ER
All the material in this publication is copyright
© Pearson Education Ltd

General Comments

This paper proved accessible for most learners and a full range of responses were seen across all questions.

Learners should be reminded that examiners do not see the learner's question paper or any annotations they have made on it and so they must take care to clearly explain their method or notation. Any labelled diagrams or annotations made on the question paper will not earn credit unless they are transferred into the answer book. This was particularly noticeable on questions 4, 5, 7 and 8 where some responses referred to annotations on a diagram that examiners could not see.

Question 1

Many good responses were seen, with the majority using **i**–**j** notation rather than column vectors. A few responses did not subtract in the right order or made arithmetical errors. Of those responses which did not gain all the marks, many failed to find a speed after getting a velocity. A small number of responses tried to use speed rather than velocity in the impulse momentum equation which did not gain any credit.

Question 2

Part (a)

A large number of responses formed correct initial equations, some using column vector form. Some responses then made arithmetic, or sign slips in part (a).

Part (b)

Frequent errors on part (b) were equating moments to zero or having some other incorrect total mass on the right-hand side. A significant minority of responses multiplied or divided by three for the total mass with no justification: often this still allowed a correct response to part (a) but was penalised in part (b).

Question 3

Many good responses were seen to this question. A small number of weaker responses tried to use constant acceleration formulae, sometimes only in part (a) or (b) while successfully using calculus in the other part.

Part (a)

The most common errors in part (a) were setting the **j** rather than **i** component to zero or giving a scalar answer.

Part (b)

In part (b) a number of sign errors were introduced in some otherwise correct responses. A small number of otherwise correct responses did not find the magnitude of the acceleration. Learners did not seem to be troubled by the final surd answer and realised the calculator warning at the start of the question was to encourage them to show their working, which they duly did.

Question 4

The lack of a diagram on the answer booklet meant that this question proved challenging for examiners to understand to what a learner was referring to in their working on a number of responses. Examiners try to be as fair as possible and give

learners the benefit of the doubt around ambiguities, but learners should try to clearly explain their working or labelling.

Part (a)

In part (a), all manner of methods were seen including several outside the scope of the mark scheme. Among the most successful (and popular) responses were the main scheme alongside alternatives 3 and 4. Some responses were rather inefficient and did a lot of unnecessary working to find total masses etc. before finally writing the one or two lines that were needed for a solution.

Part (b)

Part (b) saw a good number of successful responses along the lines of the main scheme, with only a small number of responses getting confused about distances. The position of the particle of weight kW caused problems for some, with various responses placing it at B rather than A.

Question 5

This question proved to be a great discriminator with a wide range of responses seen. The lack of a diagram in the answer booklet meant that learner's notation had to be interpreted to give the greatest benefit of doubt where possible. The location of points D, G or O or the positioning of R_1 and R_2 could be ascertained from usage when that usage was correct and consistent. However, use of F_1, F_2, F_3 and F_4 was more challenging, especially when they just appeared as calculated values. Many responses gave appropriate accuracy of 2 or 3 sf in part (a) where g = 9.8 was used. However, the rounded answers were then often used in further calculations so that later accuracy marks were lost due to premature rounding. Many responses which would have otherwise been completely correct lost two accuracy marks on this question.

Part (a)

In part (a), there were many good and succinct responses taking moments about *A* but a small number did not realise the need for moments and unsuccessfully tried to resolve.

Part (b)

There was a number of responses in part (b) that confused sine and cosine or did not use the correct angles, with 30° frequently seen. The majority of good responses resolved as per the mark scheme, with those who tried to resolve parallel and perpendicular to the rod, or those taking moments with *T* resolved, usually missing a term and unable to correctly proceed.

Part (c)

It was common to see the correct method employed in part (c) from many of the responses which had values for *F* and *R*. A significant proportion of responses did not give both a correct value for the angle and a clear description of the direction.

Question 6

This question received a great deal of good responses.

Part (a)

Part (a) was generally well answered, with only a small number of responses incorrectly using constant acceleration formulae. A minority made arithmetic errors calculating c.

Part (b)

Part (b) allowed a number of responses which had an incorrect part (a) to score well. A number of responses struggled to gain the last two marks as they found

the distance in the first two seconds or added / subtracted values incorrectly. Several responses did not score these marks because there was no written evidence of substitution and learners must be careful to ensure that they show sufficient working in their solutions, especially when the question advises so.

Question 7

The question carried the greatest number of marks and proved to be a good discriminator, especially the final part. One frequent issue among responses was premature rounding of values so that final marks were lost to accuracy on parts (c) and (d) in particular.

Part (a)

Part (a) was generally well-attempted with only a small number of responses ignoring the instruction to use energy (which was not given credit). A number of responses had the gravitational energy on the wrong side; some of these and others assumed that point *B* was at a vertical level below point *A* which caused a number of problems in later parts.

Part (b)

In part (b) many responses correctly followed the main mark scheme, although a number set up simultaneous equations: only some responses successfully dealt with the resulting algebraic rearrangement.

Part(c)

Part (c) attracted a number of strong responses, using many different methods, with even some of the longer ones arriving at correct answers. The loss of the final mark from premature rounding was common.

Part (d)

In part (d) a great many responses struggled to find the correct time required, although many were able to get some credit for finding an appropriate time as part of their working. The strongest responses used two equations efficiently, usually along the methods in the mark scheme.

Question 8

This question proved accessible to all and a great many strong responses were seen.

Part (a)

In part (a) most responses applied momentum and impact successfully and found two velocities. A small number had e on the wrong side of the impact equation; the majority did not realise the need for the modulus to give the speed of A. A small number of unsuccessful responses tried to use some form of energy equation.

Part (b)

Part (b) allowed for many successful starts, with most responses considering the change of direction for A. Some responses only considered one of the conditions, and a large number did not realise that the inequality for B needed to be strict. Only a minority of responses successfully combined the two conditions to result in a correct final range of values for e.