

New  
Specification

Rewarding Learning

ADVANCED  
General Certificate of Education  
2019

Centre Number

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Candidate Number

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# Mathematics

Assessment Unit A2 2

*assessing*

Applied Mathematics



[AMT21]

\*AMT21\*

WEDNESDAY 5 JUNE, MORNING

## TIME

1 hour 30 minutes.

## INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page, on blank pages or tracing paper.**

Complete in black ink only. Questions which require drawing or sketching should be completed using an H.B. pencil.

**Do not write with a gel pen.**

Candidates must answer **all** questions from sections A and B.

Show clearly the full development of your answers.

Answers without working may not gain full credit.

Answers should be given to three significant figures unless otherwise stated.

You are permitted to use a graphic or scientific calculator in this paper.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 100. The total available mark for each section of this paper is 50.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Answers should include diagrams where appropriate and marks may be awarded for them.

Take  $g = 9.8 \text{ m s}^{-2}$ , unless specified otherwise.

A copy of the **Mathematical Formulae and Tables booklet** is provided.

Throughout the paper the logarithmic notation used is  $\ln z$  where it is noted that  $\ln z \equiv \log_e z$

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Answer all questions.

SECTION A

Mechanics

- 1 A uniform rod AB, of mass 15 kg, is held horizontally in equilibrium by two strings attached at C and D as shown in Fig. 1 below.

The strings hang vertically and are light and inextensible.

$AB = 6\text{ m}$ ,  $BD = 1\text{ m}$  and  $CD = 2.5\text{ m}$ .

- (i) Complete the diagram below showing all the external forces acting on the rod. [1]

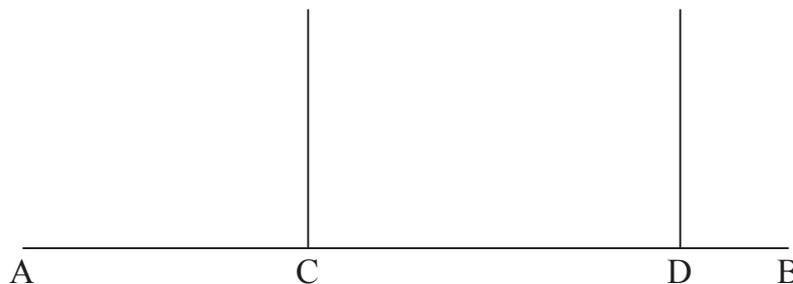


Fig. 1

- (ii) Find the tension in each string.

[5]

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Handwriting practice area with 20 sets of horizontal dotted lines.















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For Examiner's use only	
Question Number	Marks
1	
2	
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<b>Total Marks</b>	
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Examiner Number

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