

Wednesday 6 October 2021 – Afternoon

A Level Mathematics B (MEI)

H640/01 Pure Mathematics and Mechanics

Printed Answer Booklet

Time allowed: 2 hours

You must have:

- Question Paper H640/01 (inside this document)
- a scientific or graphical calculator



Please write clearly in black ink. Do not write in the barcodes.								
Centre number					Candidate number			
First name(s)								
Last name								,

INSTRUCTIONS

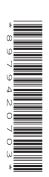
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided in the Printed Answer Booklet. If you need extra space use the lined pages at the end of the Printed Answer Booklet. The question numbers must be clearly shown.
- · Answer all the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.
- Give your final answers to a degree of accuracy that is appropriate to the context.
- The acceleration due to gravity is denoted by $g \, \mathrm{m} \, \mathrm{s}^{-2}$. When a numerical value is needed use g = 9.8 unless a different value is specified in the question.

INFORMATION

• This document has 16 pages.

ADVICE

Read each question carefully before you start your answer.



2

Section A (21 marks)

1	
2	
3(a)	

3(b)	
4(a)(i)	
4(a)(ii)	

4

4(b)(i)	
4(b)(ii)	
5(a)	
	F =
	x =
5(b)	

Section B (79 marks)

6(a)	
6(b)	

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7(a)	
7(b)	

7(c)	
8(a)	
o(a)	
8(b)	

8(c)(i)	
8(c)(ii)	
8(d)(i)	$ \begin{array}{c} y \\ 2 \\ \hline 1 \\ \hline 0 \\ \hline 3 \\ 4 \\ \hline 5 \end{array} $
8(d)(ii)	
0 (1) (11)	
8(d)(iii)	

9(a)(i)	
9(a)(ii)	
9(b)	
9(c)	

10(a)	
10(b)	15
10(0)	$v \text{ (m s}^{-1})$ $0 1 2 3 4 5 t \text{ (s)}$
10(c)	
10(d)	
	Vertical component of the second ball's initial velocity =
	Time taken for the second ball to reach its greatest height =

10(e)	
	u =
11(-)	$\alpha =$
11(a)	

11(b)	
11(c)	

12	

13(a)	

13(b)	
13(c)	
13(c)	

16 ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

1	



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