



Oxford Cambridge and RSA

**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

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Candidate number

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First name(s)

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Last name

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**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  $g \text{ m s}^{-2}$ . 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.

**Section A (21 marks)**

<b>1</b>	
<b>2</b>	
<b>3(a)</b>	

<b>3(b)</b>	
	<b>4(a)(i)</b>
<b>4(a)(ii)</b>	

<b>4(b)(i)</b>	
<b>4(b)(ii)</b>	
<b>5(a)</b>	
	$F =$
	$x =$
<b>5(b)</b>	

**Section B (79 marks)**

<b>6(a)</b>	
<b>6(b)</b>	

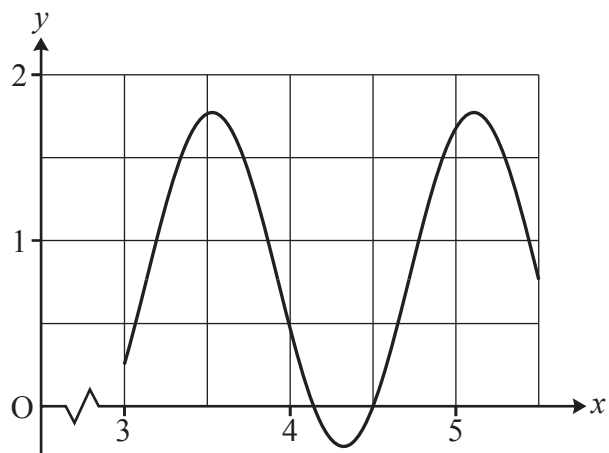
<b>7(a)</b>	

<b>7(b)</b>	

<b>7(c)</b>	
<b>8(a)</b>	
<b>8(b)</b>	

**8(c)(i)**


**8(c)(ii)**

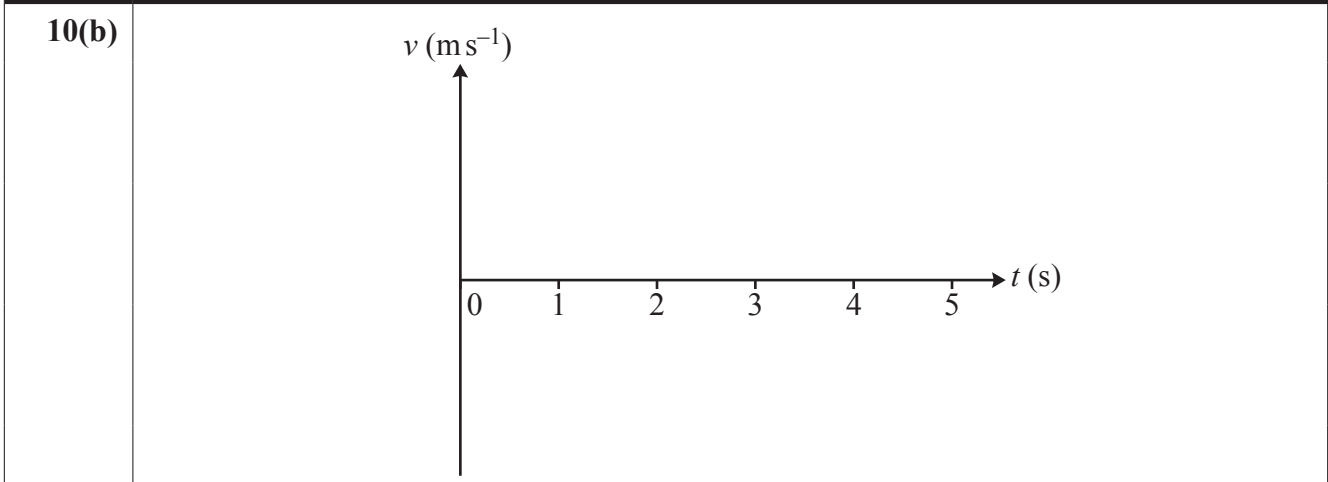

**8(d)(i)****8(d)(ii)**


**8(d)(iii)**




<b>9(a)(i)</b>	
<b>9(a)(ii)</b>	
<b>9(b)</b>	
<b>9(c)</b>	

<b>10(a)</b>	



<b>10(c)</b>	

<b>10(d)</b>	
	Vertical component of the second ball's initial velocity =
Time taken for the second ball to reach its greatest height =	

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

<b>11(b)</b>	
<b>11(c)</b>	





<b>13(b)</b>	

<b>13(c)</b>	

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).




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