

FOR OFFICIAL USE



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National  
Qualifications  
2023 MODIFIED

Mark

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**X802/77/01**

**Mathematics of Mechanics  
Answer booklet**

TUESDAY, 9 MAY  
1:00 PM – 3:50 PM



Fill in these boxes and read what is printed below.

Full name of centre

--

Town

--

Forename(s)

--

Surname

--

Number of seat

--

Date of birth

Day

--	--

Month

--	--

Year

--	--

Scottish candidate number

--	--	--	--	--	--	--	--	--	--

Write your answers clearly in the spaces provided in the answer booklet. The size of the space provided for an answer is not an indication of how much to write. You do not need to use all the space.

Additional space for answers is provided at the end of the answer booklet. If you use this space you must clearly identify the question number you are attempting.

Use **blue** or **black** ink.

Before leaving the examination room you must give this booklet to the Invigilator; if you do not, you may lose all the marks for this paper.



QUESTION  
NUMBER

1.

DO NOT  
WRITE IN  
THIS  
MARGIN

2.



\* X 8 0 2 7 7 0 1 0 2 \*

QUESTION  
NUMBER

3.(a)

DO NOT  
WRITE IN  
THIS  
MARGIN

3.(b)



\* X 8 0 2 7 7 0 1 0 3 \*

QUESTION  
NUMBER

4.(a)

DO NOT  
WRITE IN  
THIS  
MARGIN

4.(b)



\* X 8 0 2 7 7 0 1 0 4 \*

QUESTION  
NUMBER

5.

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 0 5 \*

QUESTION  
NUMBER

6.(a)

DO NOT  
WRITE IN  
THIS  
MARGIN

6.(b)



\* X 8 0 2 7 7 0 1 0 6 \*

QUESTION  
NUMBER

7.

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 0 7 \*

QUESTION  
NUMBER

**8.(a)**

DO NOT  
WRITE IN  
THIS  
MARGIN

**8.(b)**



\* X 8 0 2 7 7 0 1 0 8 \*



QUESTION  
NUMBER

9.(a)

DO NOT  
WRITE IN  
THIS  
MARGIN

9.(b)



\* X 8 0 2 7 7 0 1 0 9 \*

QUESTION  
NUMBER

10.(a)

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 1 0 \*

QUESTION  
NUMBER

10.(b)

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 1 1 \*

QUESTION  
NUMBER

DO NOT  
WRITE IN  
THIS  
MARGIN

11.(a)

11.(b)



\* X 8 0 2 7 7 0 1 1 2 \*

QUESTION  
NUMBER

12.

DO NOT  
WRITE IN  
THIS  
MARGIN



QUESTION  
NUMBER

13.

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 1 4 \*

QUESTION  
NUMBER

14.

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 1 5 \*

QUESTION  
NUMBER

15.

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 1 6 \*



QUESTION  
NUMBER

DO NOT  
WRITE IN  
THIS  
MARGIN

16.(a)

16.(b)



\* X 8 0 2 7 7 0 1 1 7 \*

QUESTION  
NUMBER

DO NOT  
WRITE IN  
THIS  
MARGIN

17.(a)

17.(b)



QUESTION  
NUMBER

DO NOT  
WRITE IN  
THIS  
MARGIN

**18.(a)**

**18.(b)**  
**(i)**



DO NOT  
WRITE IN  
THIS  
MARGIN

QUESTION  
NUMBER

**18.(b)**  
**(i)**  
**(cont)**

**18.(b)**  
**(ii)**



\* X 8 0 2 7 7 0 1 2 0 \*

QUESTION  
NUMBER

DO NOT  
WRITE IN  
THIS  
MARGIN

19.(a)

19.(b)



\* X 8 0 2 7 7 0 1 2 1 \*



ENTER  
NUMBER  
OF  
QUESTION

## ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 2 \*



ENTER  
NUMBER  
OF  
QUESTION

## ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 3 \*



ENTER  
NUMBER  
OF  
QUESTION

ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 4 \*





ENTER  
NUMBER  
OF  
QUESTION

ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 5 \*

ENTER  
NUMBER  
OF  
QUESTION

ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 6 \*



ENTER  
NUMBER  
OF  
QUESTION

## ADDITIONAL SPACE FOR ANSWERS

DO NOT  
WRITE IN  
THIS  
MARGIN



\* X 8 0 2 7 7 0 1 2 7 \*



For marker's use

Question	Marks



\* X 8 0 2 7 7 0 1 2 8 \*