

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Friday 26 May 2023 – Afternoon**

**AS Level Further Mathematics B (MEI)**

**Y413/01 Modelling with Algorithms**

**Printed Answer Booklet**

**Time allowed: 1 hour 15 minutes  
plus your additional time allowance**

**YOU MUST HAVE:**

**Question Paper Y413/01 (with this document)  
the Formulae Booklet for Further Mathematics B (MEI)  
a scientific or graphical calculator**

**Please write clearly in black ink.**

**Centre number**

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**Candidate number**

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**First name(s)** \_\_\_\_\_

**Last name** \_\_\_\_\_

**READ INSTRUCTIONS OVERLEAF**



## **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.**

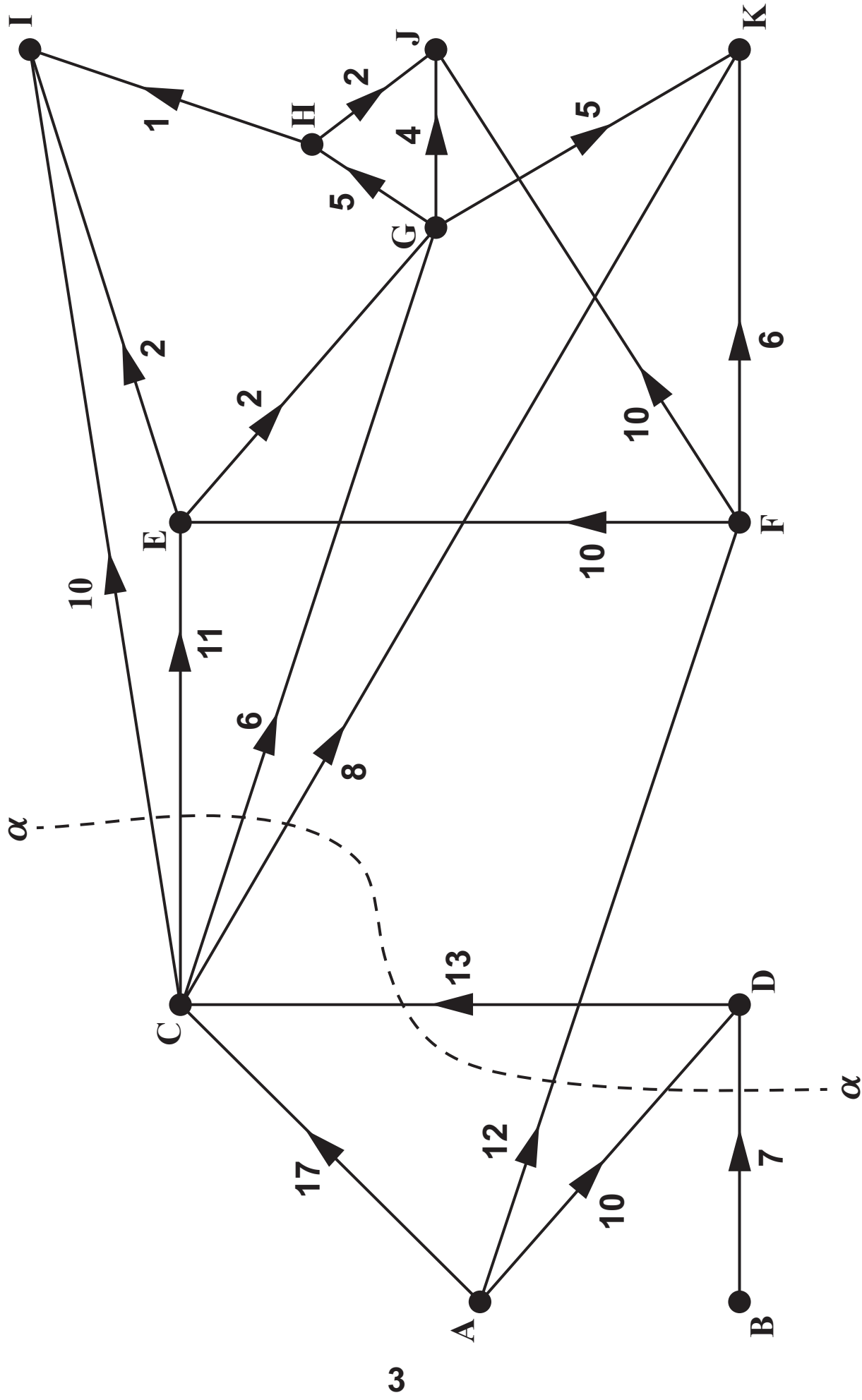
**Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.**

**Give your final answers to a degree of accuracy that is appropriate to the context.**

## **ADVICE**

**Read each question carefully before you start your answer.**

1(a)



1(b)

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1(c)

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[illegible]

2(a)

2(b)(i)

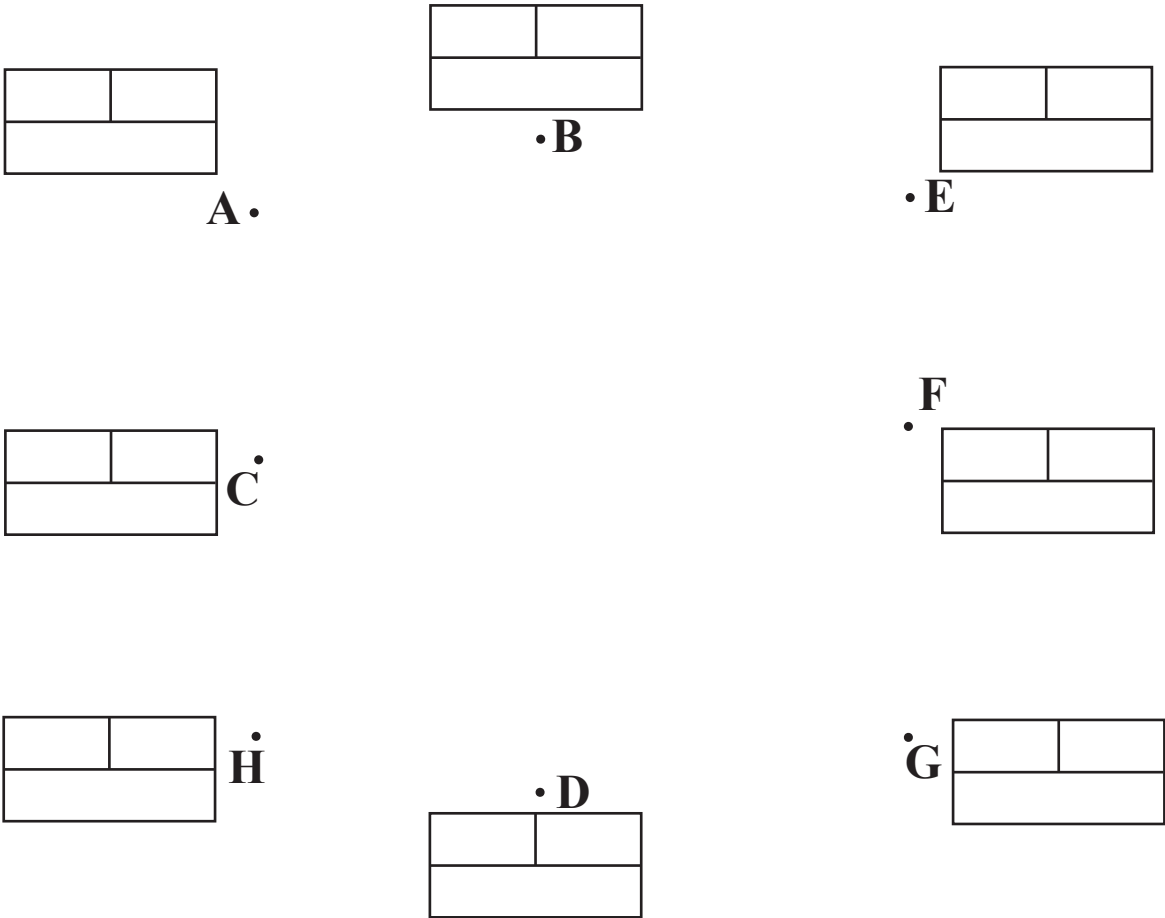
Key:

Order of labelling

Working values

(do not cross out)


Label



Length of quickest route from A to H =

\_\_\_\_\_

2(b)(ii)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2(c)

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**3(a)**

17 15 18 9 23 20 14 12 25 11

[illegible]



**3(b)(i)**

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**3(b)(ii)**

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[illegible]

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[illegible]

**3(d)(ii)**

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**4(a)**

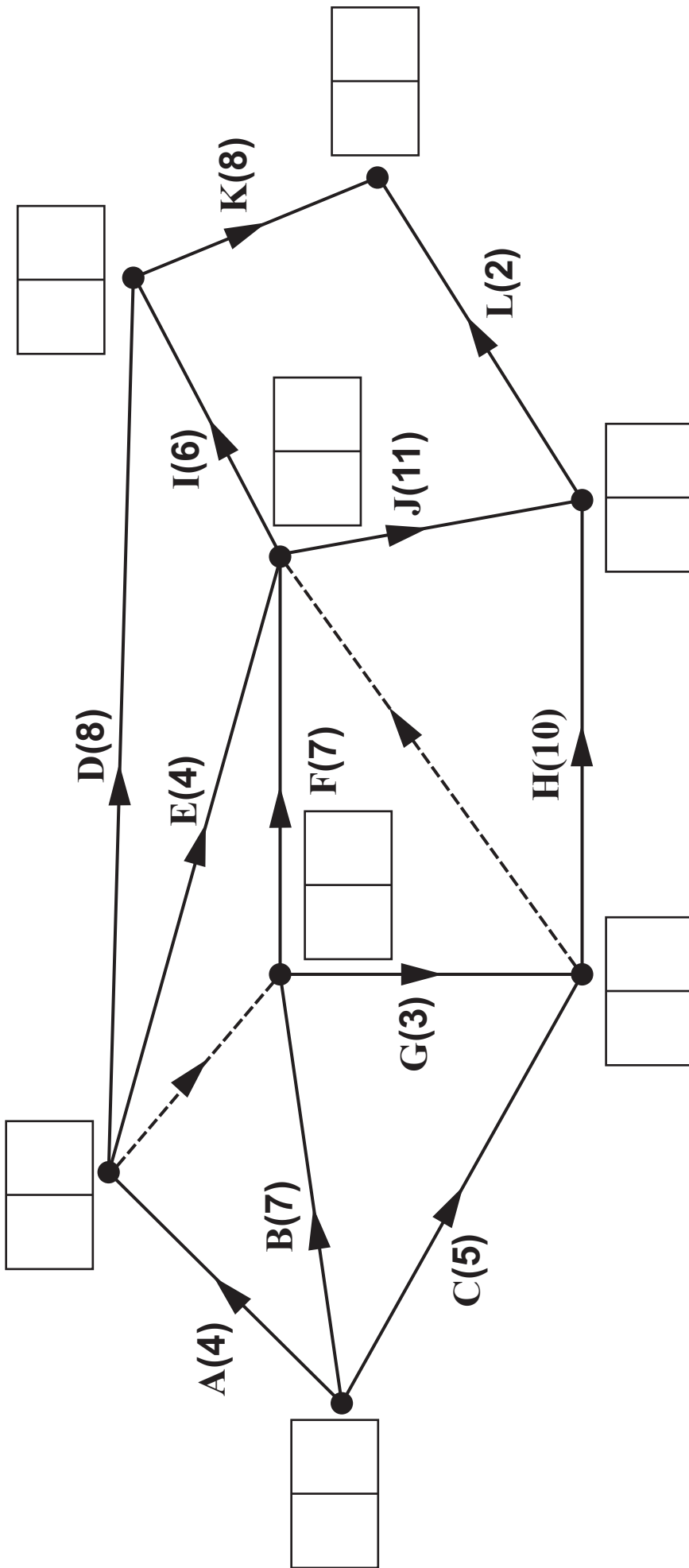
<b>Activity</b>	<b>Immediate Predecessor(s)</b>
<b>A</b>	
<b>B</b>	
<b>C</b>	
<b>D</b>	
<b>E</b>	
<b>F</b>	
<b>G</b>	
<b>H</b>	
<b>I</b>	
<b>J</b>	
<b>K</b>	
<b>L</b>	

**4(b)**    **Minimum completion time =** \_\_\_\_\_

\_\_\_\_\_

**Critical activities:** \_\_\_\_\_

\_\_\_\_\_



**4(c)**

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**4(d)(i)**

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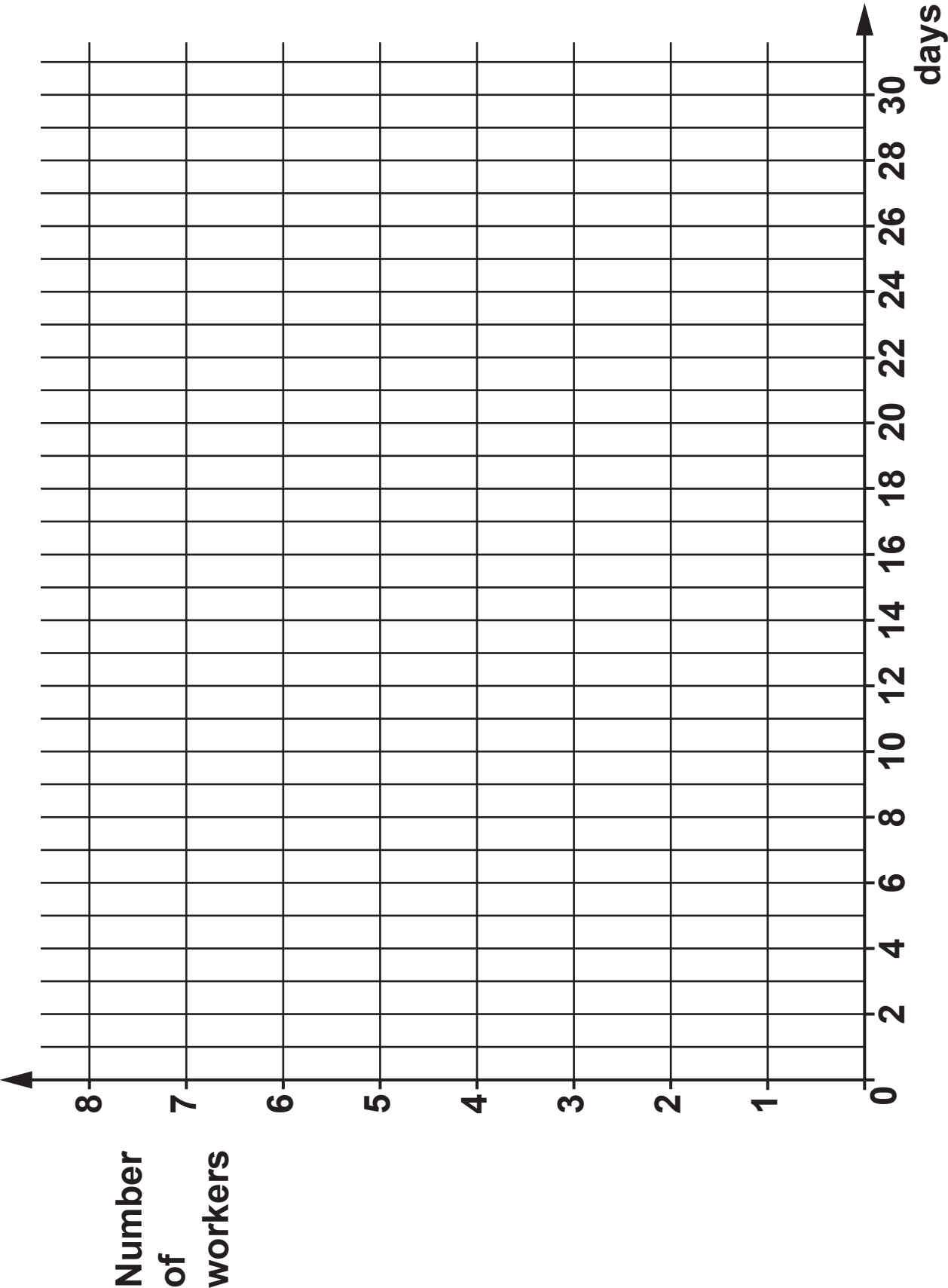
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There is a spare copy of this graph on page 25



**4(d)(ii)**

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**5(a)**

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**5(b)**

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**5(c)**

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[illegible]

[illegible]

[illegible]

[illegible]

$P$	$x$	$y$	$s_1$	$s_2$	$s_3$	$s_4$	RHS

6(b)

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<i>P</i>	<i>x</i>	<i>y</i>	<i>s</i> <sub>1</sub>	<i>s</i> <sub>2</sub>	<i>s</i> <sub>3</sub>	<i>s</i> <sub>4</sub>	RHS

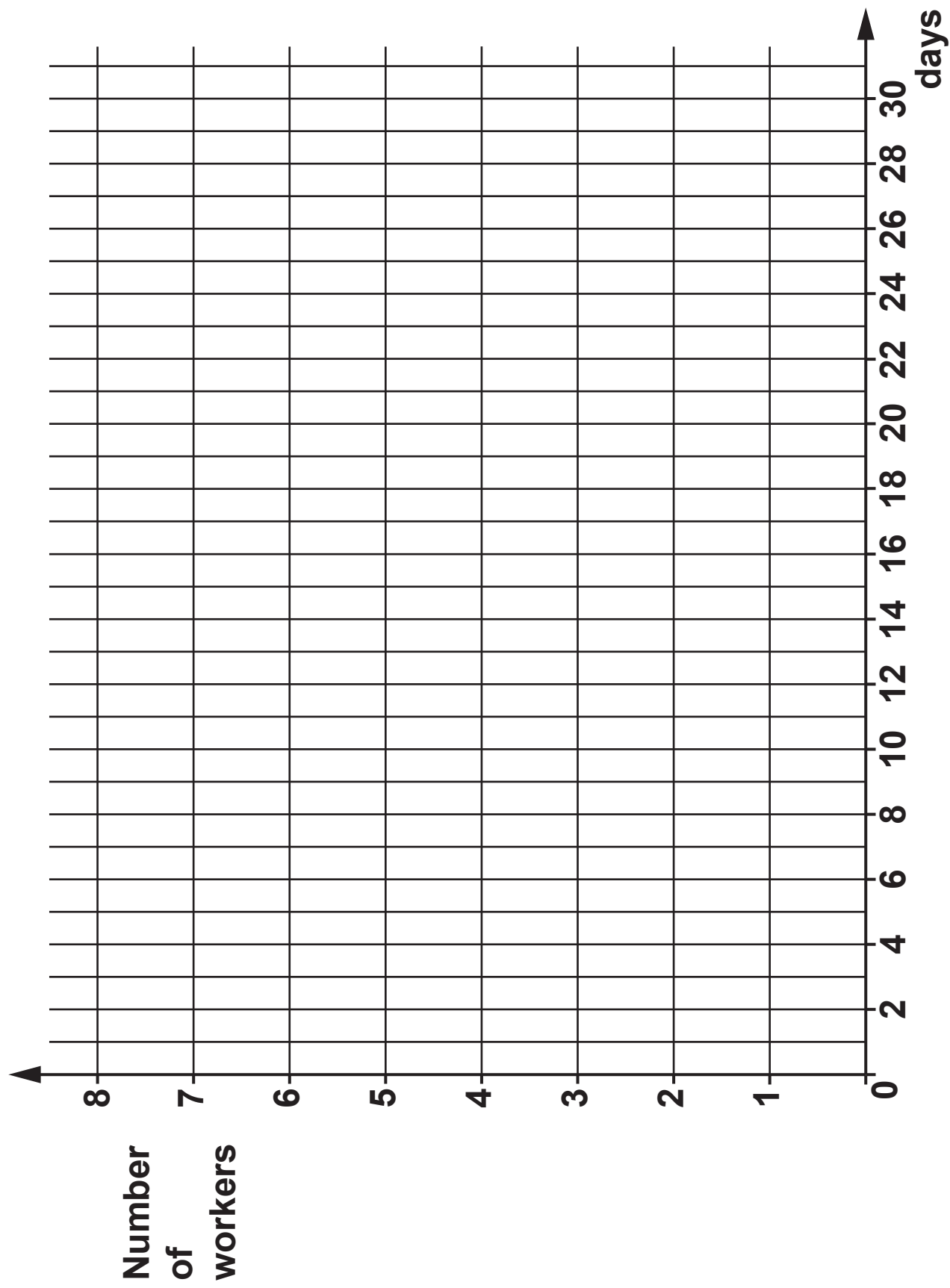
spare copy of tableau

<i>P</i>	<i>x</i>	<i>y</i>	<i>s</i> <sub>1</sub>	<i>s</i> <sub>2</sub>	<i>s</i> <sub>3</sub>	<i>s</i> <sub>4</sub>	RHS

[illegible]



4(d)(i) Spare copy of graph for Q4(d)(i)



**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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