

Modified Enlarged 24pt
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

--	--	--	--	--

Candidate number

--	--	--	--

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.

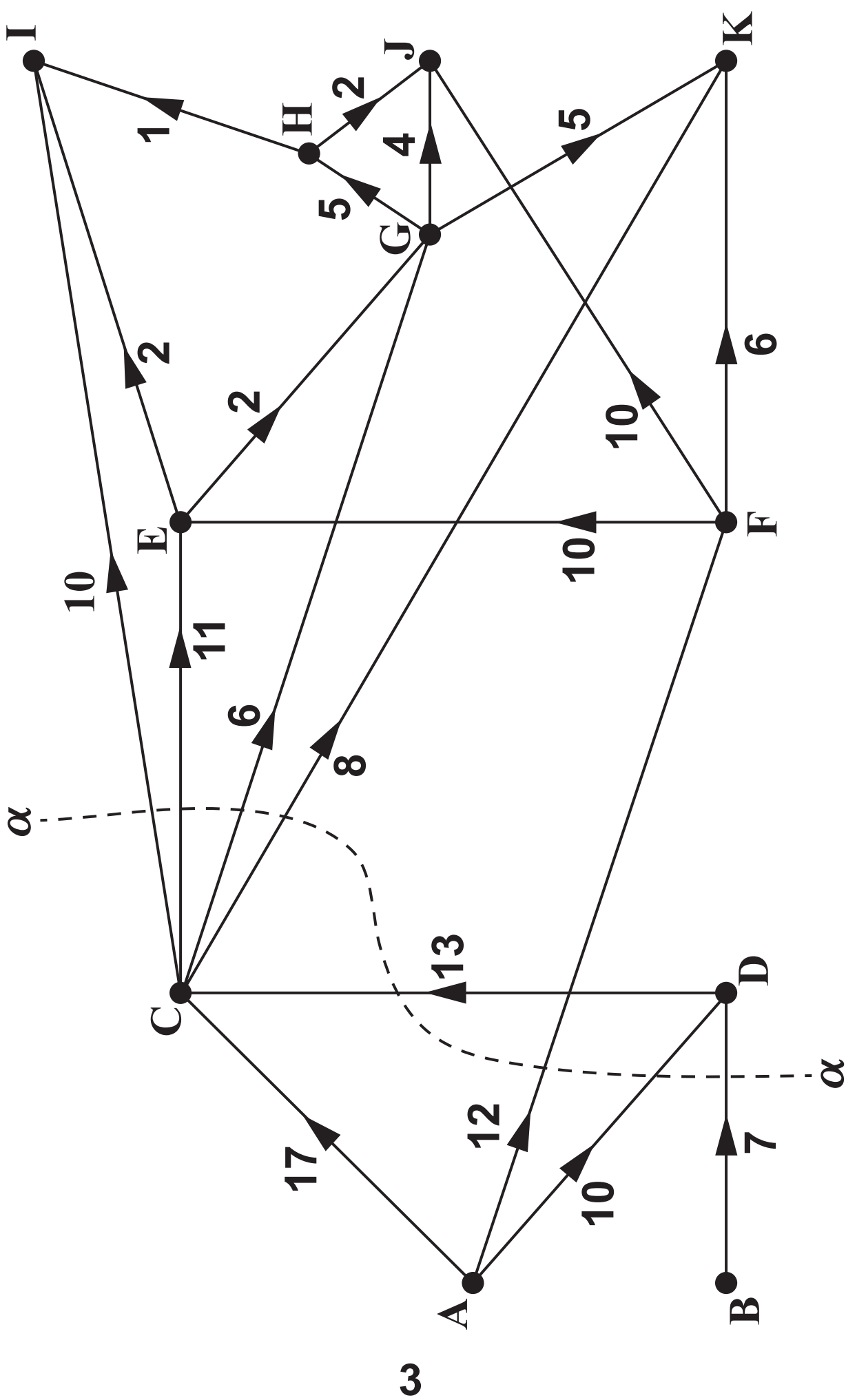
Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.

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)

1(c)

1(d)

[illegible]

2(a)

2(b)(i)

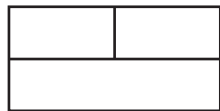
Key:

Order of labelling →

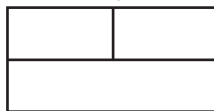
 ← Label

Working values →

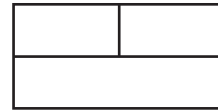
(do not cross out)



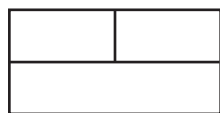
A.



·B

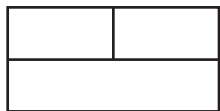
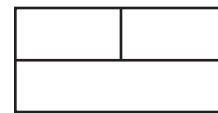


·E



C[·]

F[·]

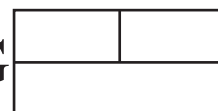


H[·]

·D



G[·]



**Length of quickest route from
A to H =**

2(b)(ii) _____

2(c) _____

3(a)

17 15 18 9 23 20 14 12 25 11

[illegible]

3(b)(i)

3(b)(ii) _____

3(c)

[illegible]

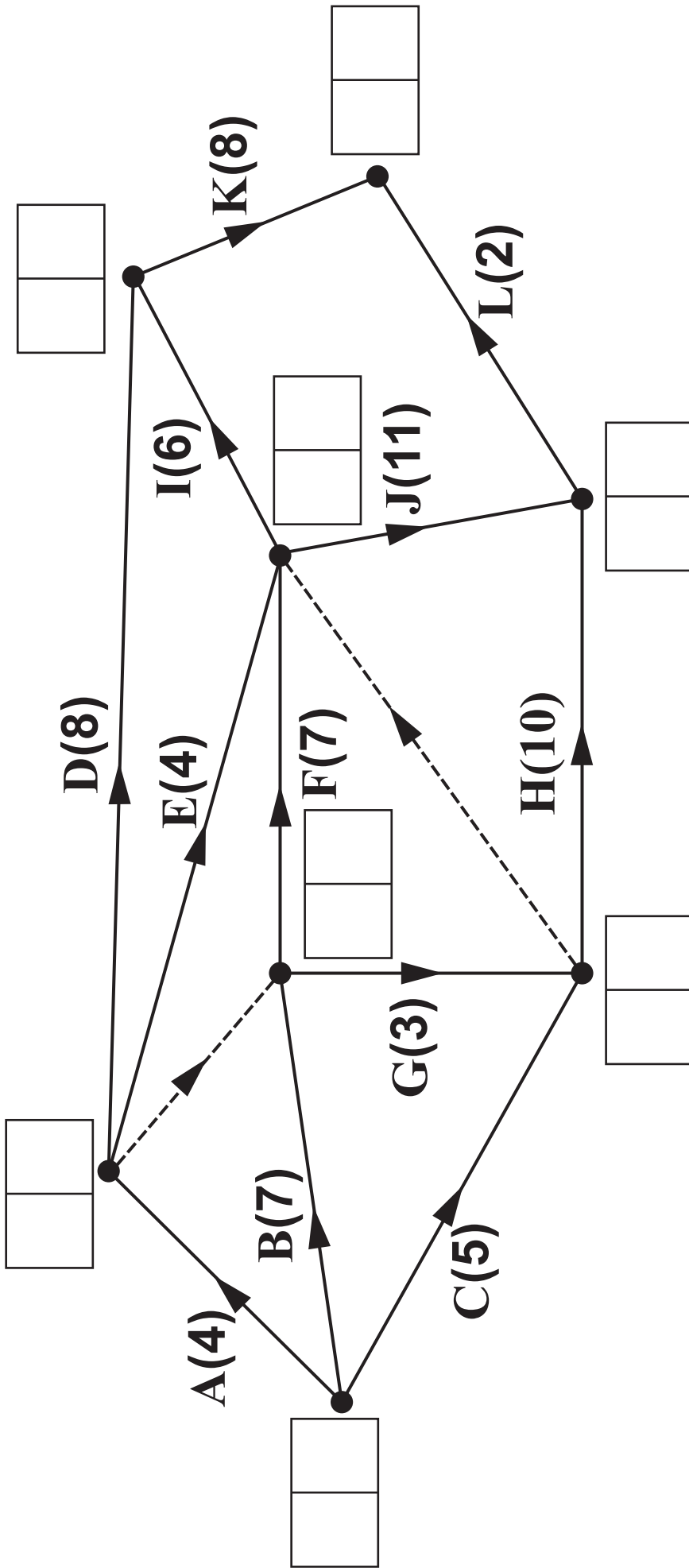
3(d)(ii)

4(a)

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

4(b) Minimum completion time = _____

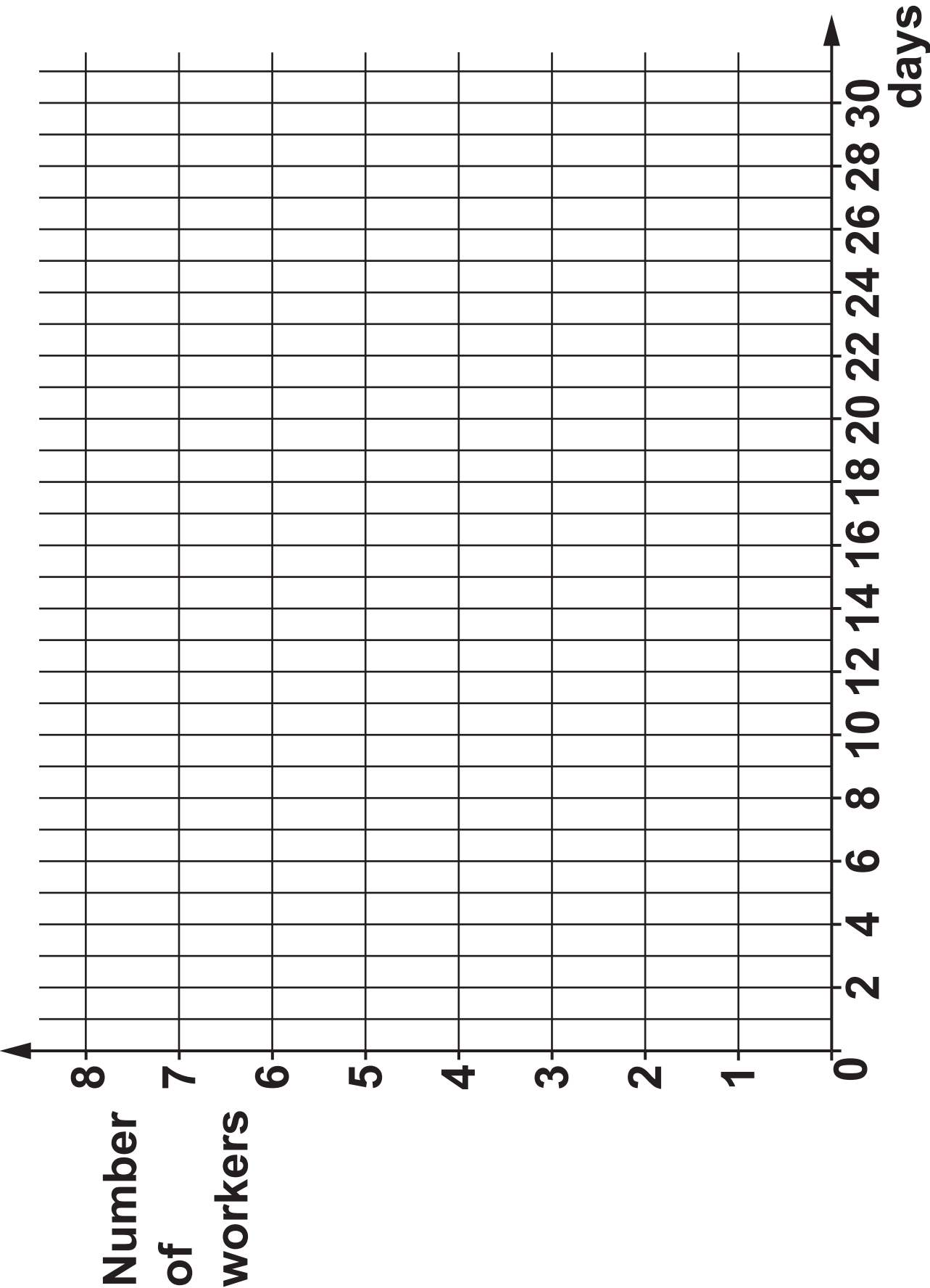
Critical activities: _____



4(c)

4(d)(i)

There is a spare copy of this graph on page 29



4(d)(ii)

5(a)

5(b)

5(c)

5(d)

[illegible]

[illegible]

5(e)

[illegible]

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

BLANK PAGE

6(b)

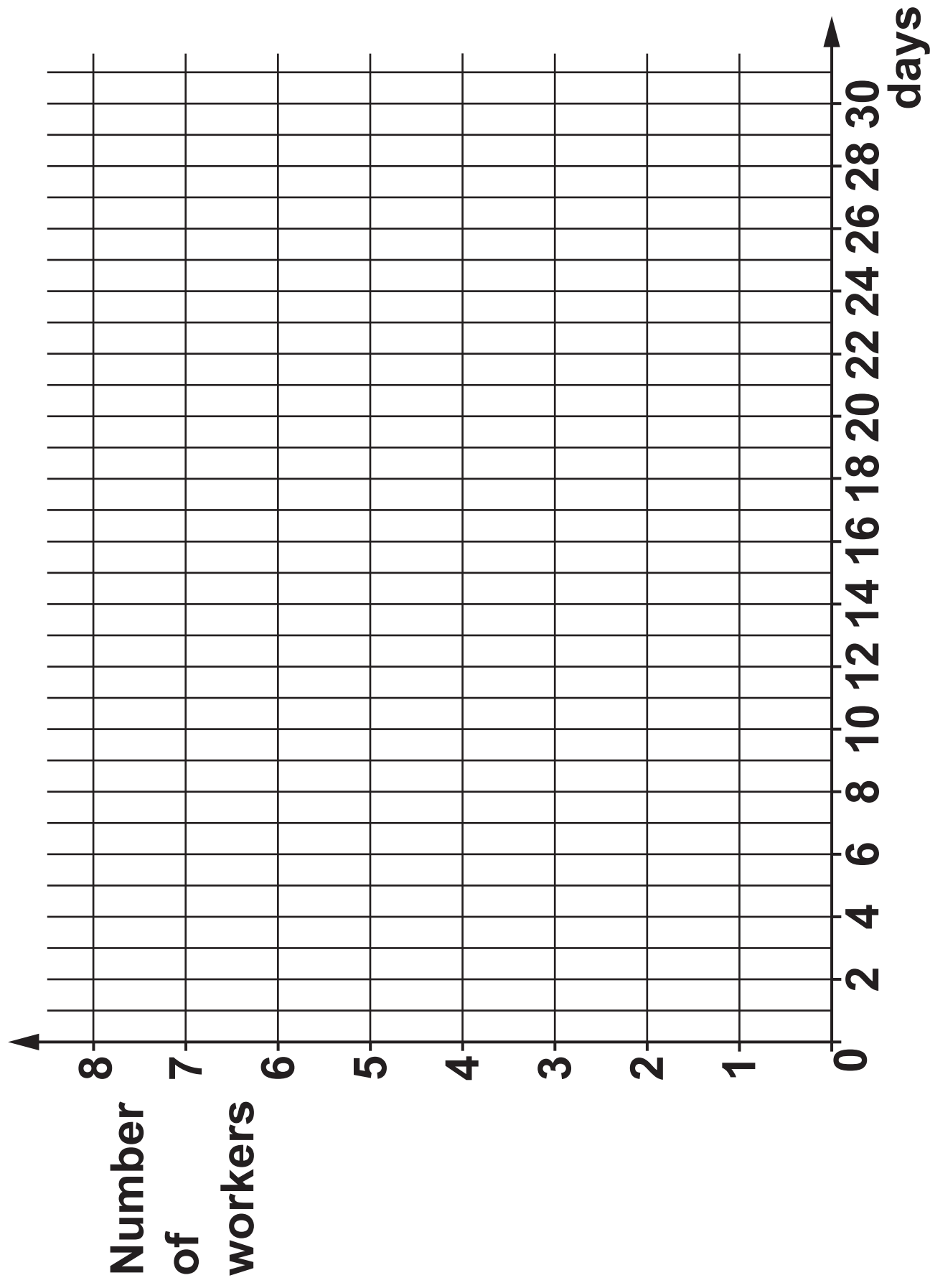
P	x	y	s_1	s_2	s_3	s_4	RHS

spare copy of tableau

P	x	y	s_1	s_2	s_3	s_4	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).

[illegible]

[illegible]

[illegible]



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of Cambridge University Press & Assessment, which is itself a department of the University of Cambridge.