



Oxford Cambridge and RSA

Wednesday 8 June 2022 – Afternoon

A Level Further Mathematics B (MEI)

Y433/01 Modelling with Algorithms

Printed Answer Booklet

Time allowed: 1 hour 15 minutes



You must have:

- Question Paper Y433/01 (inside this document)
- the Formulae Booklet for Further Mathematics B (MEI)
- 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)

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.

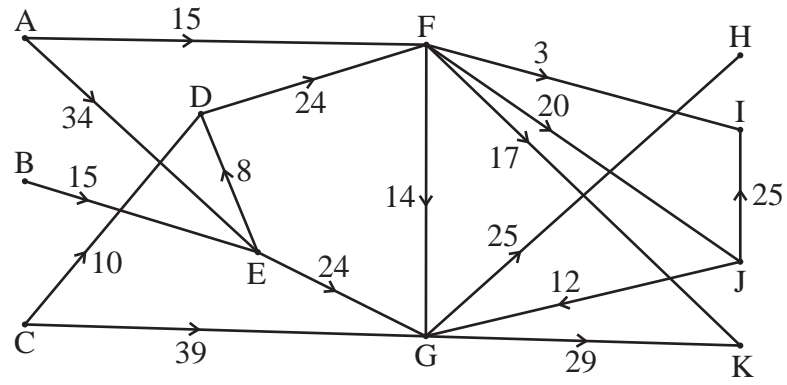
INFORMATION

- This document has **20** pages.

ADVICE

- Read each question carefully before you start your answer.

1(a)



1(b)

1(c)

1(d)	
1(e)	

2(a)	A	B	Is $ A - B < 0.001$?
Final output			
2(b)			
2(c)			

3(a)

3(b)

Activity	Duration (hours)
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	

3(c)

	0	1	2	3	4	5	6	7	8	9	10
Worker 1											
Worker 2											
Worker 3											

	10	11	12	13	14	15	16	17	18	19	20
Worker 1											
Worker 2											
Worker 3											

There is a spare copy of this schedule on page 16

4(a)	
4(b)	
4(c)	

7

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5(a)

5(b)

5(c)

Q	X	Y	Z	s_1	s_2	RHS

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5(d)

Q	X	Y	Z	s_1	s_2	RHS
1	$\frac{7}{4}$	0	-1	0	$\frac{3}{4}$	24
0	$\frac{7}{4}$	0	4	1	$-\frac{1}{4}$	40
0	$\frac{5}{4}$	1	0	0	$\frac{1}{4}$	8

Q	X	Y	Z	s_1	s_2	RHS

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5(e)

$P =$

$x =$

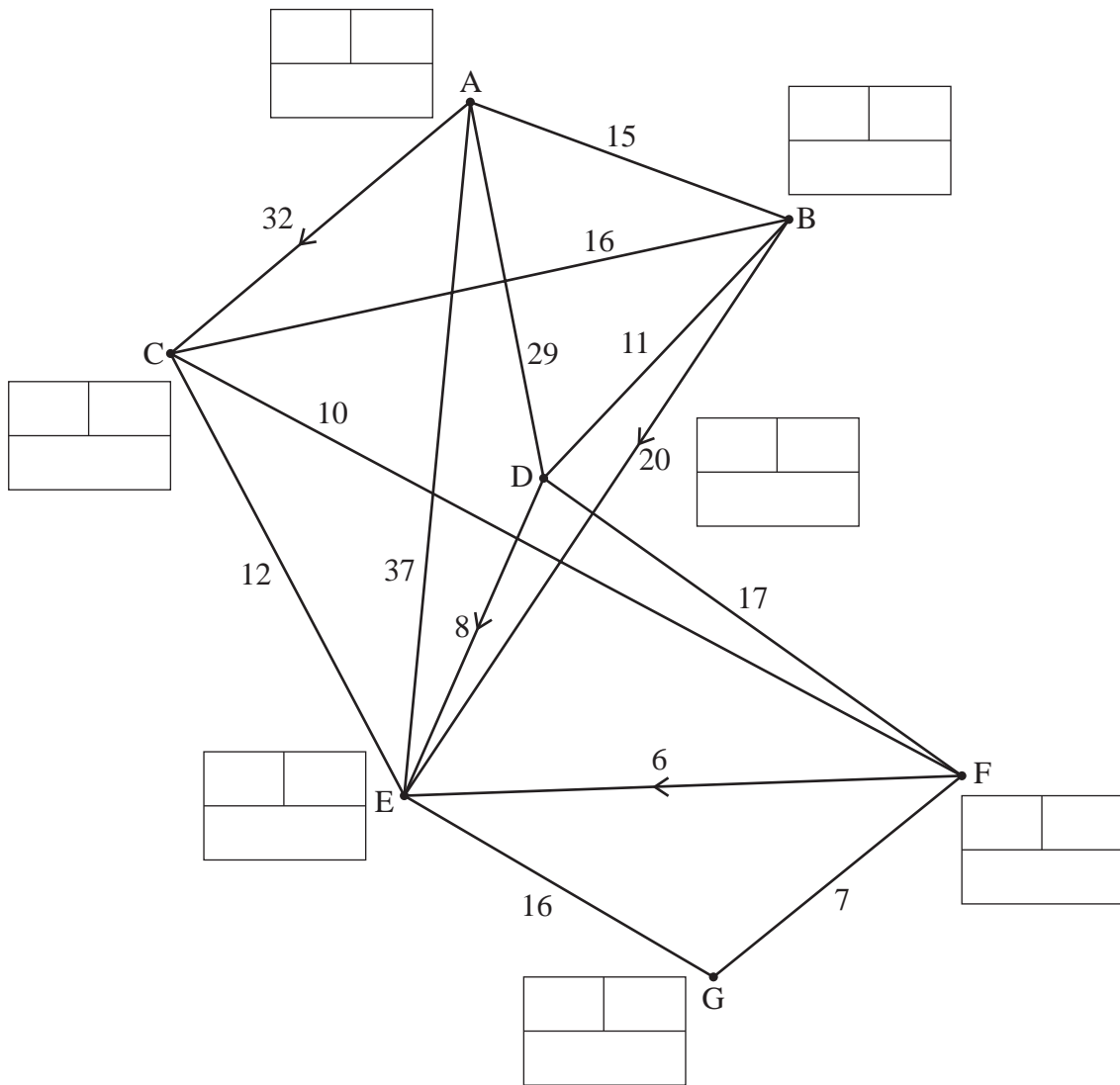
$y =$

$z =$

6(a)

Key:
 Order of labelling →

 ← Label
 Working values (do not cross out) →

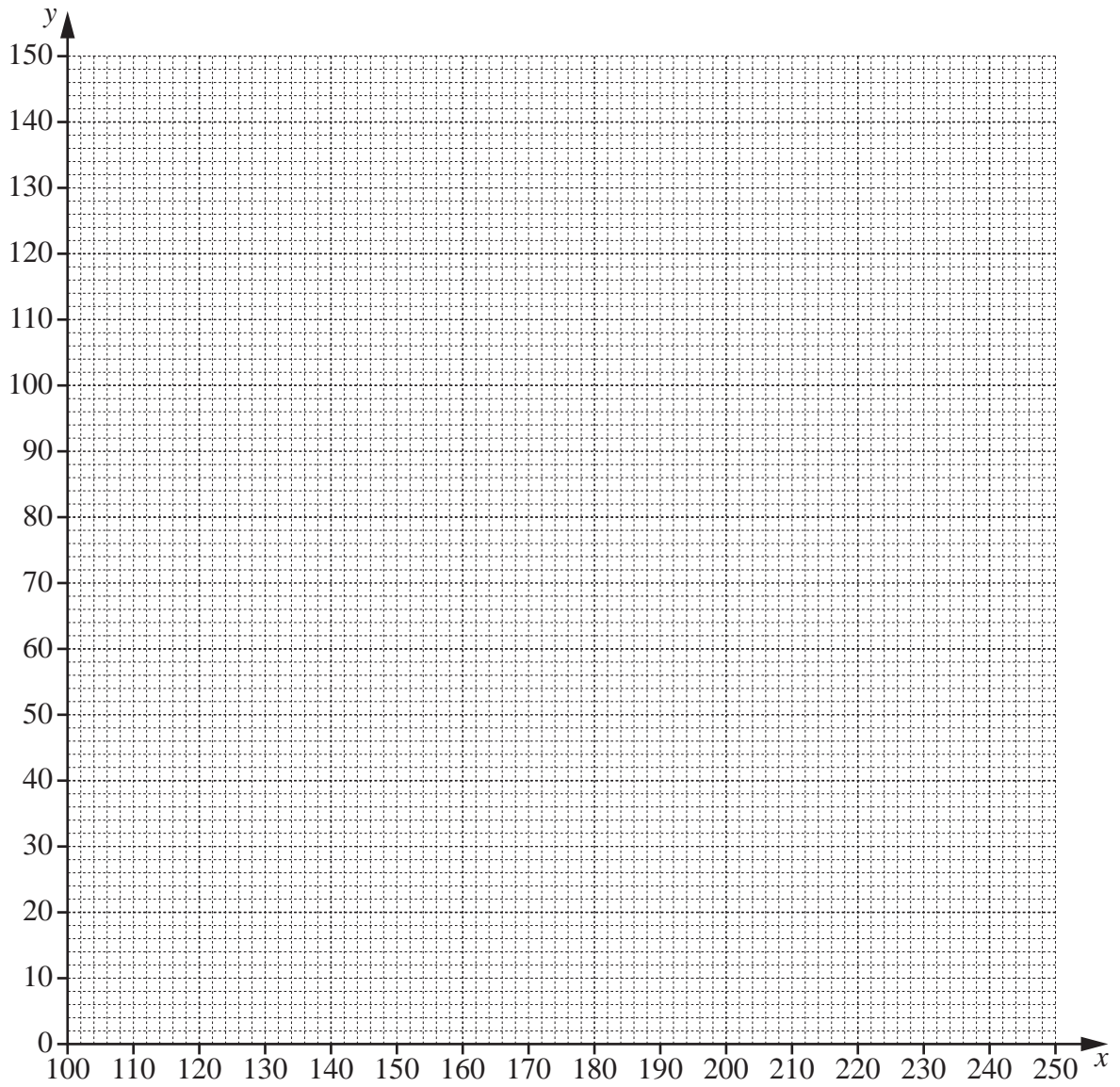


Shortest path from A to G:

6(b)(i)	
6(b)(ii)	
6(b)(iii)	
6(c)(i)	
6(c)(ii)	

7(a)	
	7(b)
(answer space continued on the next page)	

7(c)



There is a spare copy of this graph on page 17

(answer space continued on the next page)

7(c)	(continued)
7(d)	

3(c) Spare copy of schedule for Q3(c)

	0	1	2	3	4	5	6	7	8	9	10
Worker 1											
Worker 2											
Worker 3											

	10	11	12	13	14	15	16	17	18	19	20
Worker 1											
Worker 2											
Worker 3											

5(c) Spare copy of tableau for Q5(c)

Q	X	Y	Z	s_1	s_2	RHS

5(d) Spare copy of tableau for Q5(d)

Q	X	Y	Z	s_1	s_2	RHS

7(c) Spare copy of graph for Q7(c)

