

Wednesday 20 October 2021 – Afternoon

AS Level Further Mathematics B (MEI)

Y413/01 Modelling with Algorithms

Printed Answer Booklet

Time allowed: 1 hour 15 minutes

You must have:

- Question Paper Y413/01 (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						Candidate number				
First name(s)										
Last name										

INSTRUCTIONS

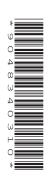
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided in the Printed Answer Booklet. If you need extra space use the lined pages at the end of the Printed Answer Booklet. The question numbers must be clearly shown.
- · 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 12 pages.

ADVICE

· Read each question carefully before you start your answer.



			2	
1(a)	A	ctivity	Immediate Predecessor(s)	
		A		
		В		
		С		
		D		
		Е		
		F		
		G		
		Н		
		I		
		J		
1(b)(i)				
			E(6)	
	A(3) B(4)	D	F(6) I(6)	H(2)
	C(5)		1(0)	J(7)
			G(3)	
1(b)(ii)				
1(c)				

2(a)	15	4	23	16	2	12	14	11	20	13	22
2(b)											
2()											
2(c)											
2(4)											
2(d)											
2(e)											
2(8)											

3(a)								
3(b)								
	P	x	y	z	<i>s</i> ₁	<i>s</i> ₂	S ₃	RHS
	1	0	0	-10	3	7	0	485
	0	0	1	-3	1	2	0	145
	0	1	0	-5	1	3	0	195
	0	0	0	1	0	1	1	75
	P	x	у	z	<i>s</i> ₁	s ₂	S ₃	RHS
3(c)								
3(d)(i)	x =							
	<i>y</i> =							
3(d)(ii)	z =							

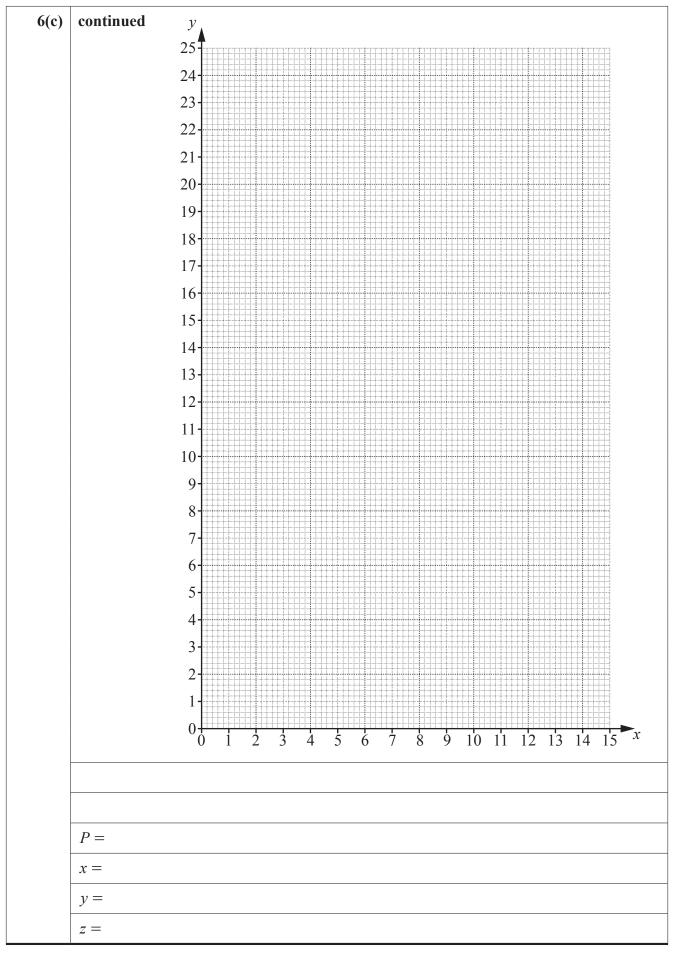
4(a)							
	a	b	n	h	c	d	e
40.							
4(b)							
4(c)							
4(c)							
4(d)							

5(a)	
5(b) 5(c)(i)	Key: Order of labelling Working values (do not cross out)
	(do not cross out)
	B • E
	C
	Å G
	D F
	Langth of shortast noth from A to G:
5(c)(ii)	Length of shortest path from A to G: Shortest path from A to G:
3(0)(11)	Shortest paul from A to O.

5(d)	
5(e)	
5(f)	

6(a)													
-													
-													
6(b)													
-													
_													
_													
	Q	P	x	у	Z	<i>s</i> ₁	<i>s</i> ₂	<i>s</i> ₃	<i>s</i> ₄	<i>s</i> ₅	a_1	a_2	RHS

6(c)	The axes for 6(c) can be found on the next page
	(answer space continued on next page)
	(answer space continued on next page)



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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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