

Thursday 26 May 2022 – 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



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Please write clea	arly in	black	ink.	Do no	ot writ	e 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 16 pages.

ADVICE

· Read each question carefully before you start your answer.



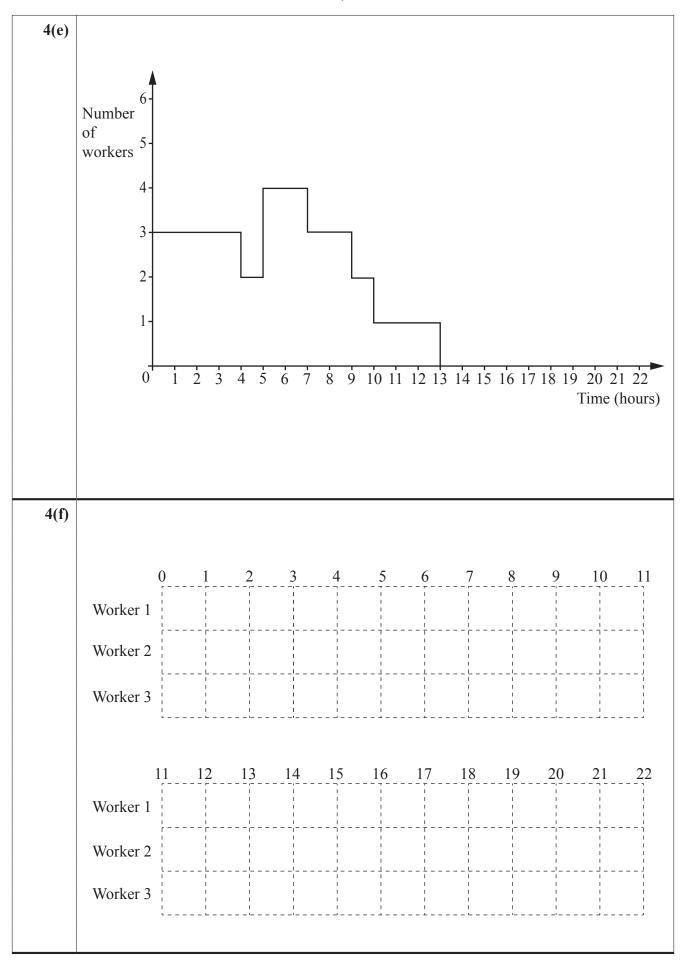
1(a)(i)					
1(a)(ii)					
1(b)(i)					
			A		
			•		
	В●				• E
		• C		• D	
1(b)(ii)					

2(a)				
2(b)	N. T.			6 6
	N	A	В	Is $-10^{-6} < B - A < 10^{-6}$?
	Final output			
2()	Tillal Output			
2(c)				
,				
2(d)				

3(a)	
3(b)(i)	Key: Order of labelling Working values (do not cross out) A 10 H 50 G G F
	Shortest path from A to C:
	Shortest path from C to G:

3(b)(ii)				
3(c)				
		A		
		A •	H •	
	\mathtt{B}_{\bullet}			
	•			$^{ullet}_{ m G}$
	•	D D		${ullet}_{ m F}$
	Č	D		
			• E	

4(a)	Activity	Immediate Predecessor(s)	
	A		
	В		
	С		
	D		
	Е		
	F		
	G		
	Н		
	I		
	J		
	K		
	L		
4(b)			
	I	D(2) $J($	y)
	A(5)	E(4) K((7)
	B(x)	I(2)	
		F(8)	
	C(3) G(L(5)
	C(3)		/ L(3)
		H(7)	
		11(7)	
	Minimum completion time:		
	Critical activities:		
4(c)			
47.45			
4(d)			



5(a)(i)	
5(a)(ii)	
5(b)	
5(c)	
5(d)	
5(e)	

5(f)	S B F T
5(g)	

o (a)									
	P	x	у	Z	s_1	s_2	<i>s</i> ₃	<i>S</i> ₄	RH
					1		3	4	
									1

6(b)(i)

P	x	у	Z	<i>s</i> ₁	s_2	s_3	s_4	RHS
1	0	$-\frac{10}{3}$	0	0	$\frac{10}{3}$	1	0	0
0	0	$\frac{4}{3}$	0	1	$-\frac{1}{3}$	0	0	32
0	0	$-\frac{1}{3}$	1	0	<u>1</u> 3	0	0	0
0	1	-2	0	0	3	1	0	0
0	0	104/3	0	0	$-\frac{107}{3}$	-11	1	1000

P	x	У	Z	<i>s</i> ₁	s_2	<i>s</i> ₃	s_4	RHS

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

6(d)	

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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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