

# Wednesday 21 October 2020 – 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 (MFI)
- · a scientific or graphical calculator



Please write clearly in black	k. 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.



1(a)	
1(b)	

2(a)		
2(b)		
2()(1)		
2(c)(i)	)	
2()(")	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
2(c)(ii)	)	

3(a)    Comparisons   Swaps     Ist pass					
Comparisons Swaps  Ist pass 2nd pass 3rd pass 4th pass 5th pass 6th pass 7th pass	3(a)				
Comparisons Swaps  Ist pass 2nd pass 3rd pass 4th pass 5th pass 6th pass 7th pass					
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1st pass 2nd pass 3rd pass 4th pass 5th pass 6th pass 7th pass	3(b)				
1st pass 2nd pass 3rd pass 4th pass 5th pass 6th pass 7th pass					
1st pass 2nd pass 3rd pass 4th pass 5th pass 6th pass 7th pass			Comparisons	Swaps	
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5th pass 6th pass 7th pass  3(c)					
3(c)		4th pass			
3(c)		5th pass			
3(c)		6th pass			
		7th pass			
	3(c)				
3(d)	( )				
3(d)					
	3(d)				
	J(u)				

4(a)	
4(b)(i)	
4(b)(ii)	
4(c)	
4(d)	
4(d)	
1	

5(a)	
5(b)	
5(c)	
	$\stackrel{\text{A}}{\longrightarrow}$
	F
	$S \longrightarrow T$
	B

5(d)	
5(e)	

6(a)			
	Arc	Weight	
	AB		
	AC		
	AE		
	BD		
	BE		
	CE		
	CF		
	DE		
	DG		
	EF		
	EH		
	FG		
	FH		
	GH		
6(b)			
0(2)			
6(c)			
6(c)			

)								
	P	x	у	Z	<i>s</i> <sub>1</sub>	$s_2$	<i>s</i> <sub>3</sub>	RHS
1								
								1

P	x	y	Z	<i>s</i> <sub>1</sub>	s <sub>2</sub>	<i>S</i> <sub>3</sub>	RHS
1	-15	3	0	0	0	4	0
0	7	-2	0	1	0	-2	350
0	5/2	0	0	0	1	$-\frac{1}{2}$	150
0	$-\frac{3}{2}$	1	1	0	0	1/2	0
		1					
P	x	y	Z	<i>s</i> <sub>1</sub>	<i>s</i> <sub>2</sub>	<i>s</i> <sub>3</sub>	RHS

7(d)(i)	
7(d)(ii)	
7(e)	
7(f)	

## 12 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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