OCR
Oxford Cambridge and RSA

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 (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
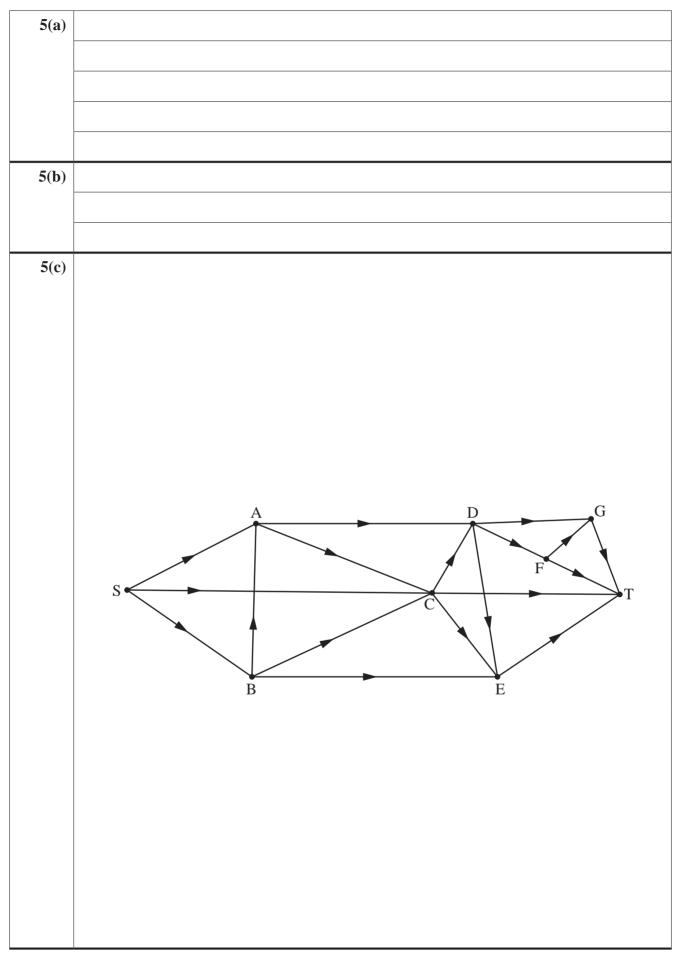* Read each question carefully before you start your answer.

OCR is an exempt Charity

Turn over

2

1(a)

1(b)

3

2(a)	
2(b)	
2(c)(i)	
2(c)(ii)	

Turn over

4

3(a)

3(b)

	Comparisons	Swaps
1st pass		
2nd pass		
3rd pass		
4th pass		
5th pass		
6th pass		
7th pass		

3(c)

3(d)

4(a)

4(b)(i)

4(b)(ii)

4(c)

4(d)

Turn over

5(a)	
5(b)	
5(c)	

5(d)

5(e)

6(a)

Arc	Weight
AB	
AC	
AE	
BD	
BE	
CE	
CF	
DE	
DG	
EF	
EH	
FG	
FH	
GH	

6(b)

6(c)

7(a)

P	x	y	z	s_1	s_2	s_3	RHS

7(b)

7(c)

P	x	y	z	s_1	s_2	s_3	RHS
1	-15	3	0	0	0	4	0
0	7	-2	0	1	0	-2	350
0	$\frac{5}{2}$	0	0	0	1	$-\frac{1}{2}$	150
0	$-\frac{3}{2}$	1	1	0	0	$\frac{1}{2}$	0

P	x	y	z	s_1	s_2	s_3	RHS

11

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).