



Oxford Cambridge and RSA

Wednesday 20 October 2021 – 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 **12** pages.

ADVICE

- Read each question carefully before you start your answer.

1(a)	
1(b)	
The answer space for Q2(a) and Q2(b) is on page 3	
2(c)	
2(d)	

2(a)(b)	
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2(e)	

3(a)(i)

3(a)(ii)

3(b)

Key:
 Order of labelling →

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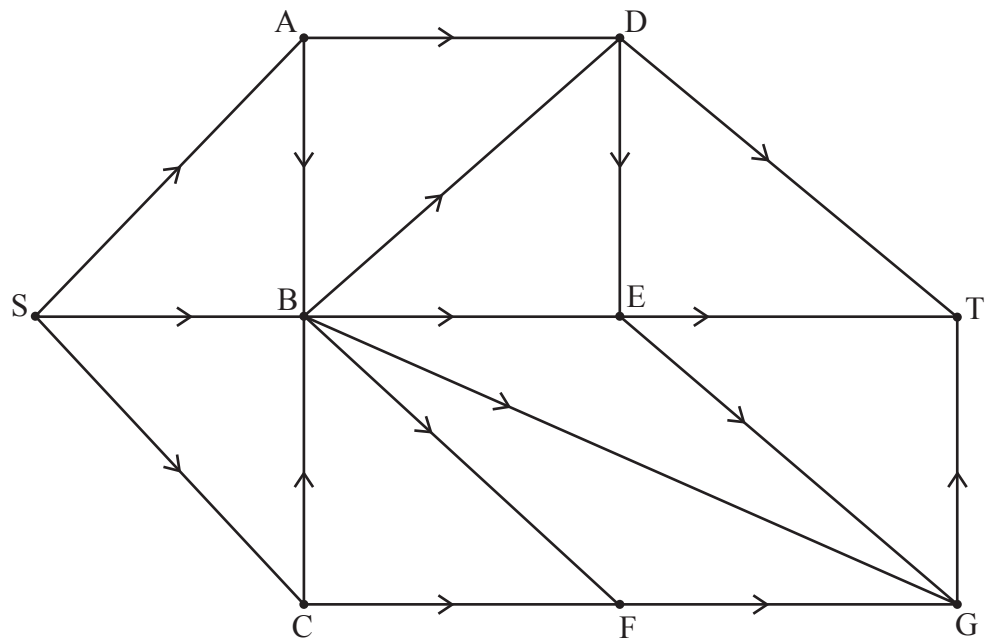
 ← Label
 Working values (do not cross out) →

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Shortest path from A to F:

4(a)(i)	Cut $\alpha =$
4(a)(ii)	Cut $\beta =$
4(b)	The maximum possible flow is
4(c)	
4(d)	
	Subject to
	$SA - AB - AD = 0$
	$SC - CB - CF = 0$
	$AD + BD - DE - DT = 0$
	$BF + CF - FG = 0$
	$BG + EG + FG - GT = 0$
$SA \leq 62, SB \leq 71, SC \leq 47, AB \leq 43, AD \leq 22, BD \leq 39, BE \leq 32, BF \leq 43,$ $BG \leq 47, CB \leq 25, CF \leq 39, DE \leq 33, EG \leq 43, FG \leq 42$	

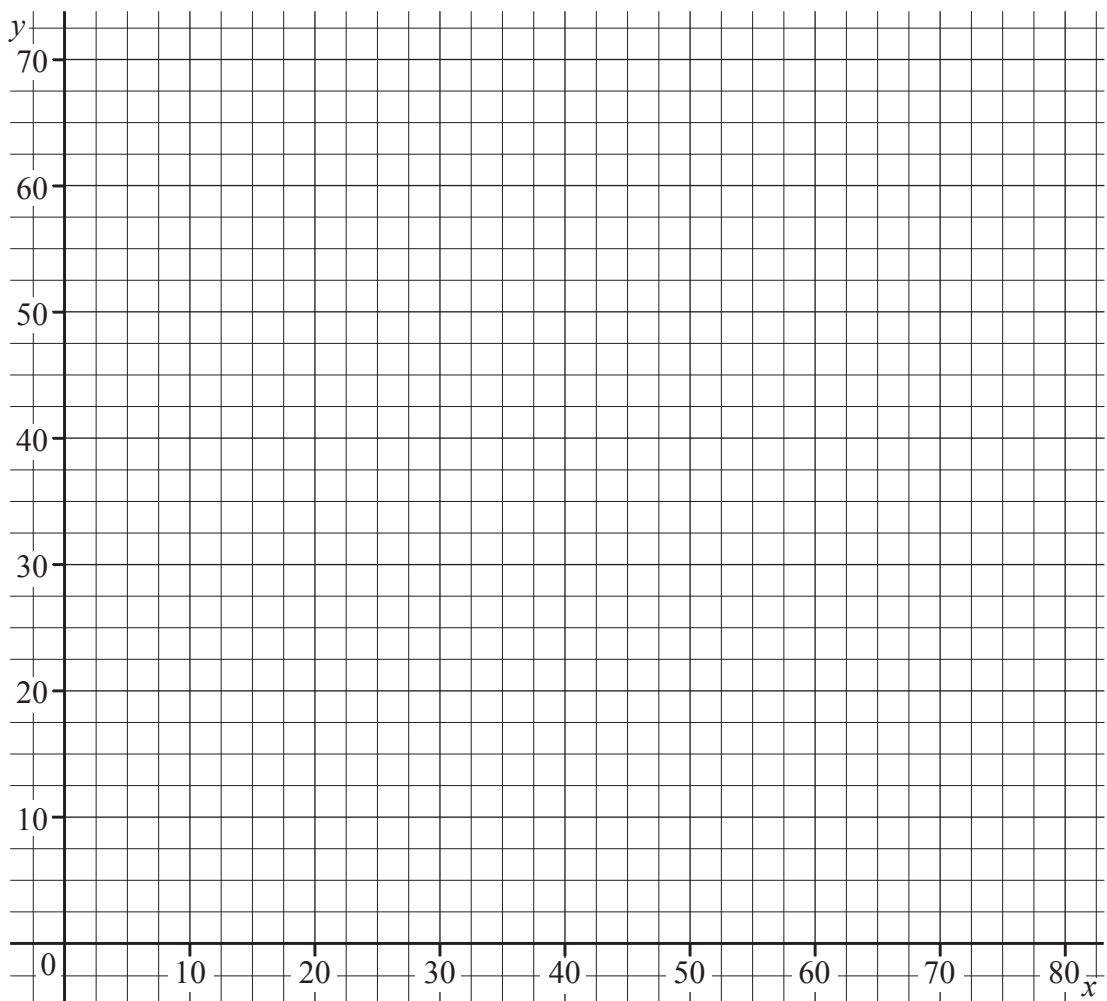
4(e)



4(f)

4(g)

5(b)



There is a spare copy of this graph on page 11

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

