OCR
Oxford Cambridge and RSA

Monday 3 June 2024 – Afternoon

A Level Further Mathematics B (MEI)

Y433/01 Modelling with Algorithms

Printed Answer Booklet

Time allowed: 1 hour 15 minutes

AB

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 | | | | | | 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.

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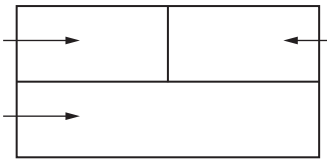
1(a) 23 15 17 10 35 18 12 21 22 11 8

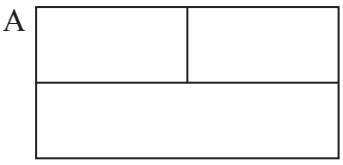
1(b)

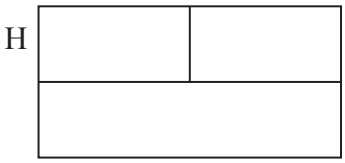
1(c)

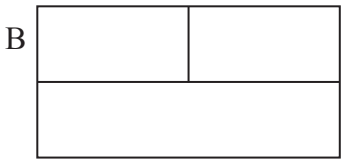
2(a)

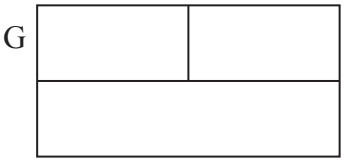
Key:

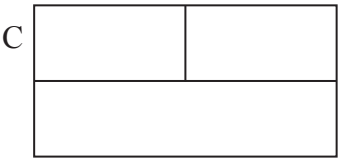


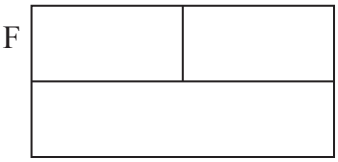


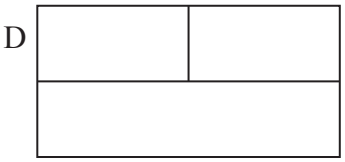


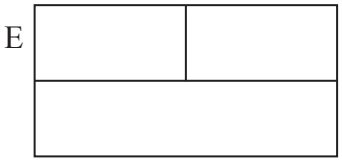












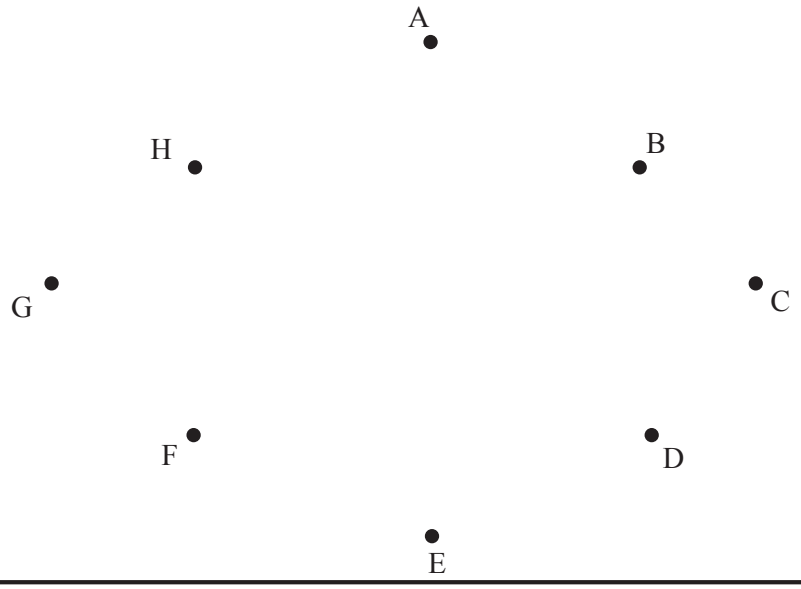
Shortest path from A to E:

2(b)(i)

	A	B	C	D	E	F	G	H
A	-	31	21	-	-	-	-	-
B	31	-	8	12	-	-	10	20
C	21	8	-	24	-	35	20	36
D	-	12	24	-	30	-	-	-
E	-	-	-	30	-	12	40	10
F	-	-	35	-	12	-	-	25
G	-	10	20	-	40	-	-	15
H	-	20	36	-	10	25	15	-

Total length:

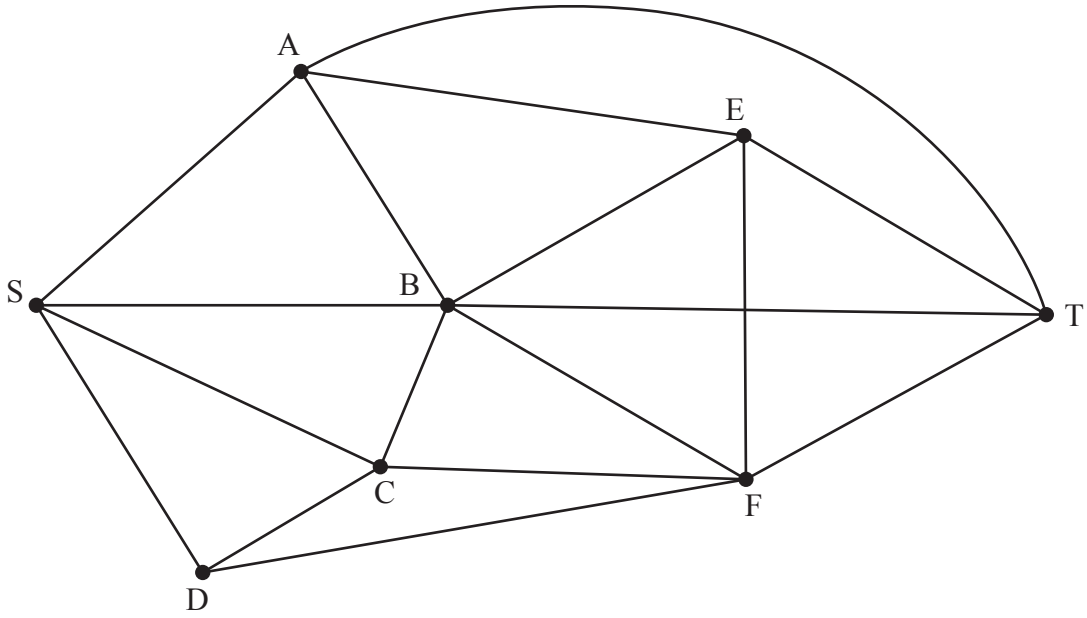
2(b)(ii)



2(c)

2(d)

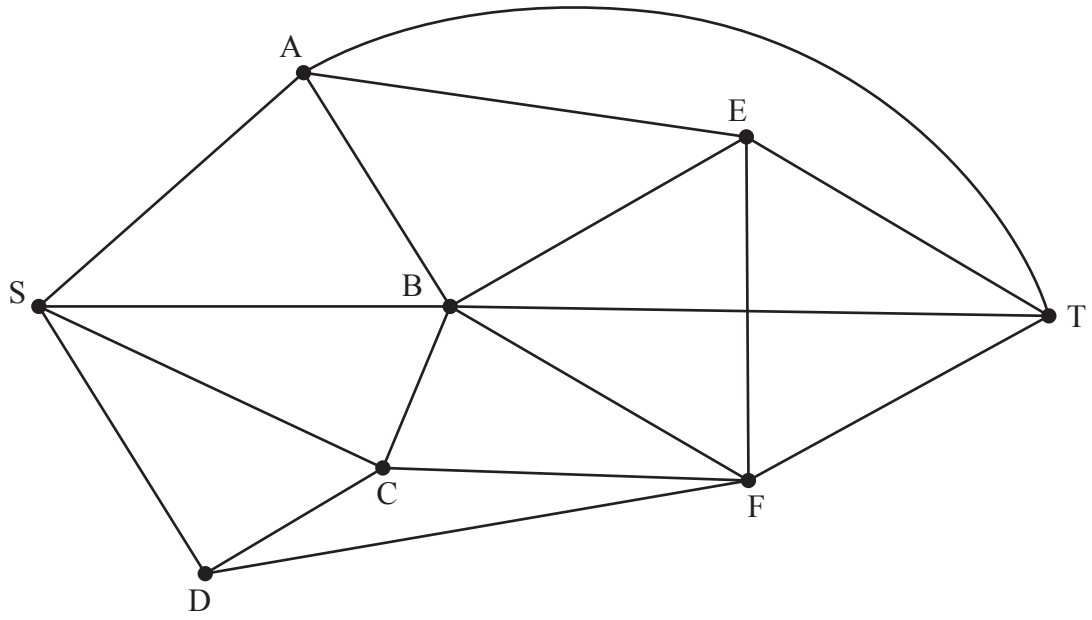
3(a)



3(b)

3(c)

3(d)



Maximum flow through the network:

3(e)

3(f)

4

(answer space continued on next page)

4 **(continued)**

A	P	x	y	z						RHS

5(a)	
5(b)(i)	
5(b)(ii)	

5(c)

Activity	Total Float (hours)
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	

5(d)(i)

5(d)(ii)

6(a)	
6(b)	
6(c)	

6(d)

P	x	y	z	s_1	s_2	s_3	RHS
1	-2	0	-1	0	0	1	20
0	1	0	$\frac{11}{3}$	1	0	$-\frac{1}{3}$	$\frac{130}{3}$
0	2	0	-2	0	1	1	40
0	0	1	$-\frac{2}{3}$	0	0	$\frac{1}{3}$	$\frac{20}{3}$

P	x	y	z	s_1	s_2	s_3	RHS

6(e)(i)	$x =$
	$y =$
	$z =$
6(e)(ii)	

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EXTRA ANSWER SPACE

If you need extra space use these lined pages. You must write the question numbers clearly in the margin.