OCR
Oxford Cambridge and RSA

Tuesday 20 October 2020 – 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 ☐☐☐☐☐   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**. You can use extra paper if you need to, but you must clearly show your candidate number, the centre number and the question numbers.
- 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
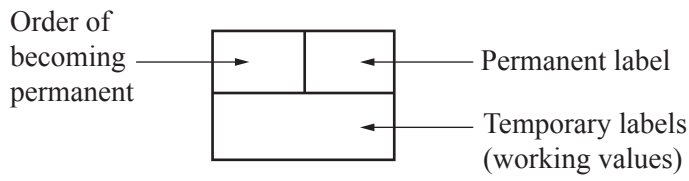- Read each question carefully before you start your answer.

Turn over

1(a)

1(b)

1(c)

2(a)

	A	B	C	D	E	F	G	H	I	J
A	–	9	–	10	13	2	17	6	–	–
B	9	–	14	–	–	–	10	7	2	10
C	–	14	–	8	18	7	–	6	–	5
D	10	–	8	–	–	16	–	11	–	15
E	13	–	18	–	–	–	7	–	–	8
F	2	–	7	16	–	–	13	10	9	–
G	17	10	–	–	7	13	–	13	11	–
H	6	7	6	11	–	10	13	–	–	9
I	–	2	–	–	–	9	11	–	–	–
J	–	10	5	15	8	–	–	9	–	–

2(b)

2(d)

2(c)	Key:

Order of becoming permanent ———— [diagram] ———— Permanent label

———— Temporary labels (working values)

Do not cross out your temporary labels.

A [box]   B [box]   C [box]

D [box]   E [box]   F [box]

G [box]   H [box]   I [box]

J [box]
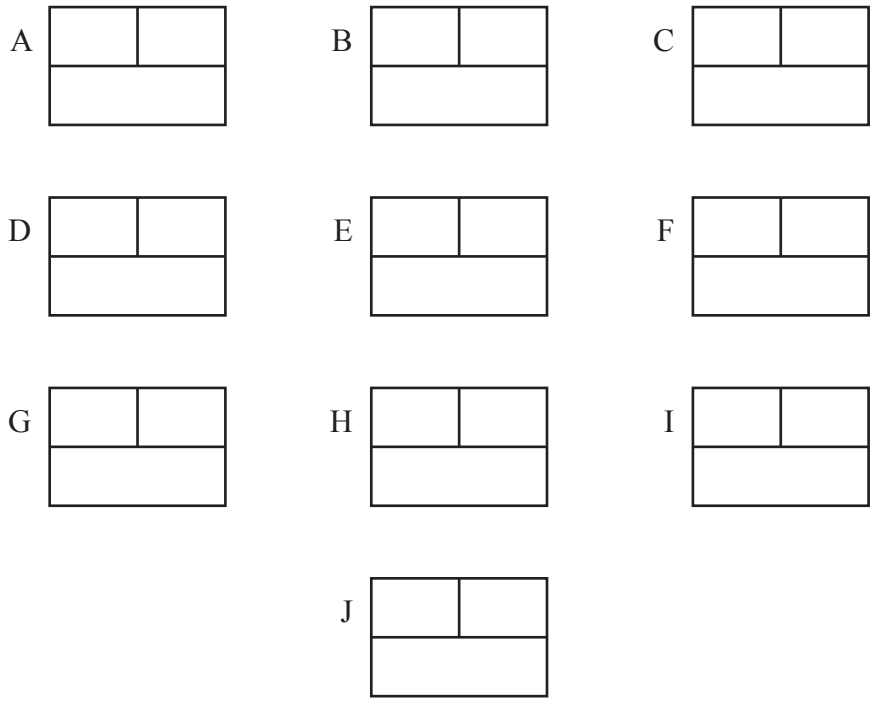
Length of shortest path from G to J via D = _____

spare copy

A [box]   B [box]   C [box]

D [box]   E [box]   F [box]

G [box]   H [box]   I [box]

J [box]

Turn over

3(a)

3(b)

3(c)

3(d)(i)

3(d)(ii)

3(e)

Maximum flow = _____

3(f)

Turn over
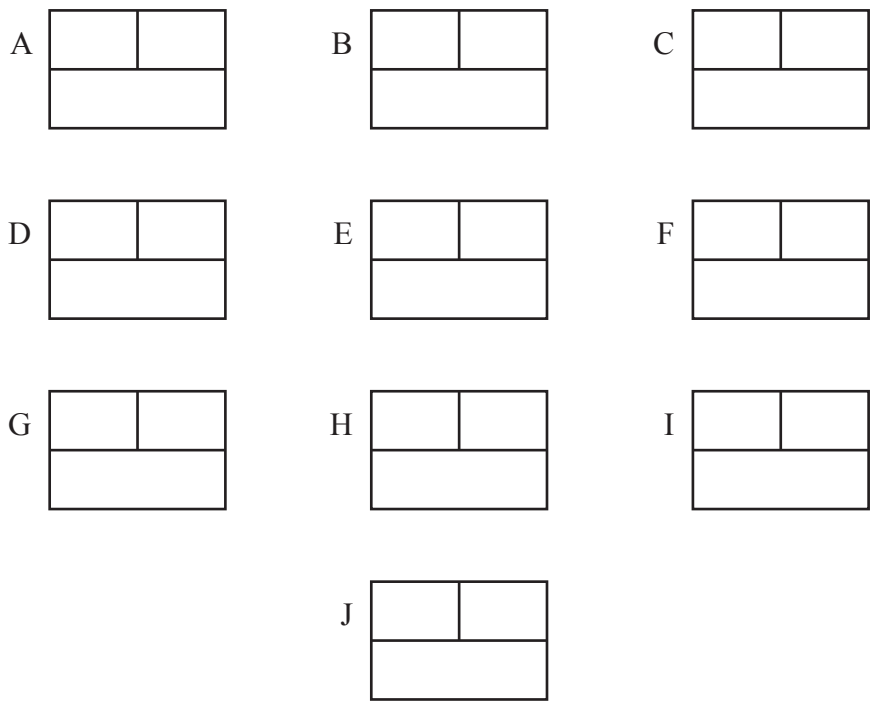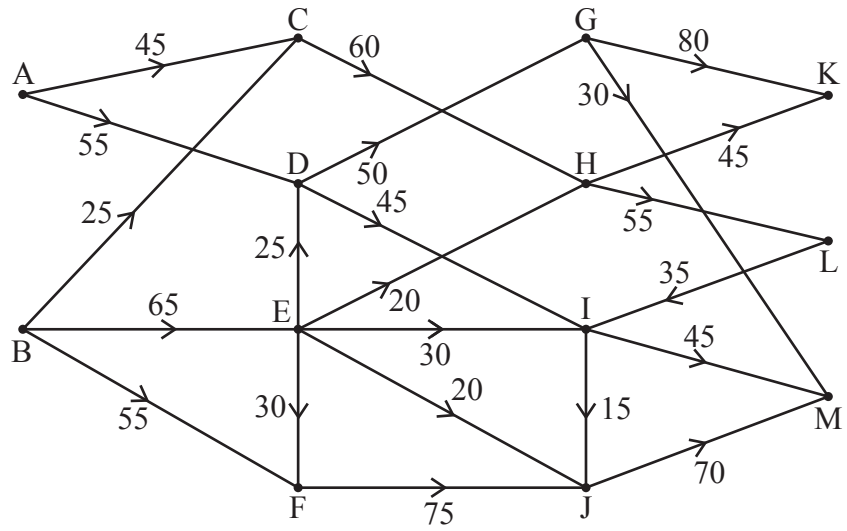
4(a)

Activity	Duration	Immediate predecessors
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		

4(d)(i)

4(d)(ii)

4(d)(iii)

4(b)(c)

Turn over

5(a)

Q	P	x	y	s_1	s_2	s_3	a_1	a_2	RHS

5(a)

5(b)

P	x	y	s_1	s_2	s_3	RHS

P	x	y	s_1	s_2	s_3	RHS

Turn over

5(c)

5(d)