OCR
Oxford Cambridge and RSA

Wednesday 23 May 2018 – Morning

A2 GCE MATHEMATICS

4737/01   Decision Mathematics 2

PRINTED ANSWER BOOK
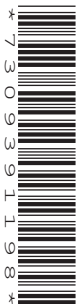
Candidates answer on this Printed Answer Book.

OCR supplied materials:
- Question Paper 4737/01 (inserted)
- List of Formulae (MF1)

Other materials required:
- Scientific or graphical calculator

Duration: 1 hour 30 minutes

Candidate forename		Candidate surname	

Centre number					Candidate number				

INSTRUCTIONS TO CANDIDATES

These instructions are the same on the Printed Answer Book and the Question Paper.

- The Question Paper will be found inside the Printed Answer Book.
- Write your name, centre number and candidate number in the spaces provided on the Printed Answer Book. Please write clearly and in capital letters.
- **Write your answer to each question in the space provided in the Printed Answer Book**. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Do **not** write in the barcodes.
- You are permitted to use a scientific or graphical calculator in this paper.
- Give non-exact numerical answers correct to 3 significant figures unless a different degree of accuracy is specified in the question or is clearly appropriate.

INFORMATION FOR CANDIDATES

This information is the same on the Printed Answer Book and the Question Paper.

- The number of marks is given in brackets **[ ]** at the end of each question or part question on the Question Paper.
- **You are reminded of the need for clear presentation in your answers.**
- The total number of marks for this paper is **72**.
- The Printed Answer Book consists of **12** pages. The Question Paper consists of **12** pages. Any blank pages are indicated.

OCR is an exempt Charity

Turn over

1 (i)

(A) •   • (1)

(B) •   • (2)

(C) •   • (3)

(D) •   • (4)

(E) •   • (5)

1 (ii)

(A) •   • (1)

(B) •   • (2)

(C) •   • (3)

(D) •   • (4)

(E) •   • (5)

1 (iii)

(A) = ...   (B) = ...   (C) = ...   (D) = ...   (E) = ...

1 (iv)

(A) •   • (1)

(B) •   • (2)

(C) •   • (3)

(D) •   • (4)

(E) •————————• (5)

2 (i)

2 (ii)

2 (iii) **(a)**

(b)(c)(d)

Augmented route: ....

Cut: ....

Turn over

3 (i)

	N	P	E	B
(1)	1000	600	200	200
(2)	800	500	300	200
(3)	500	400	300	100
(4)	1000	300	400	200

For working, if needed

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

Your answer

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

3 (ii) Use as many of these tables as you need

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

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3 (ii)	(continued)

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

	N	P	E	B
(1)				
(2)				
(3)				
(4)				

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3 (iii)	Event 1 =
	Event 2 =
	Event 3 =
	Event 4 =
	Total number of people expected =

3 (iv)	

Turn over
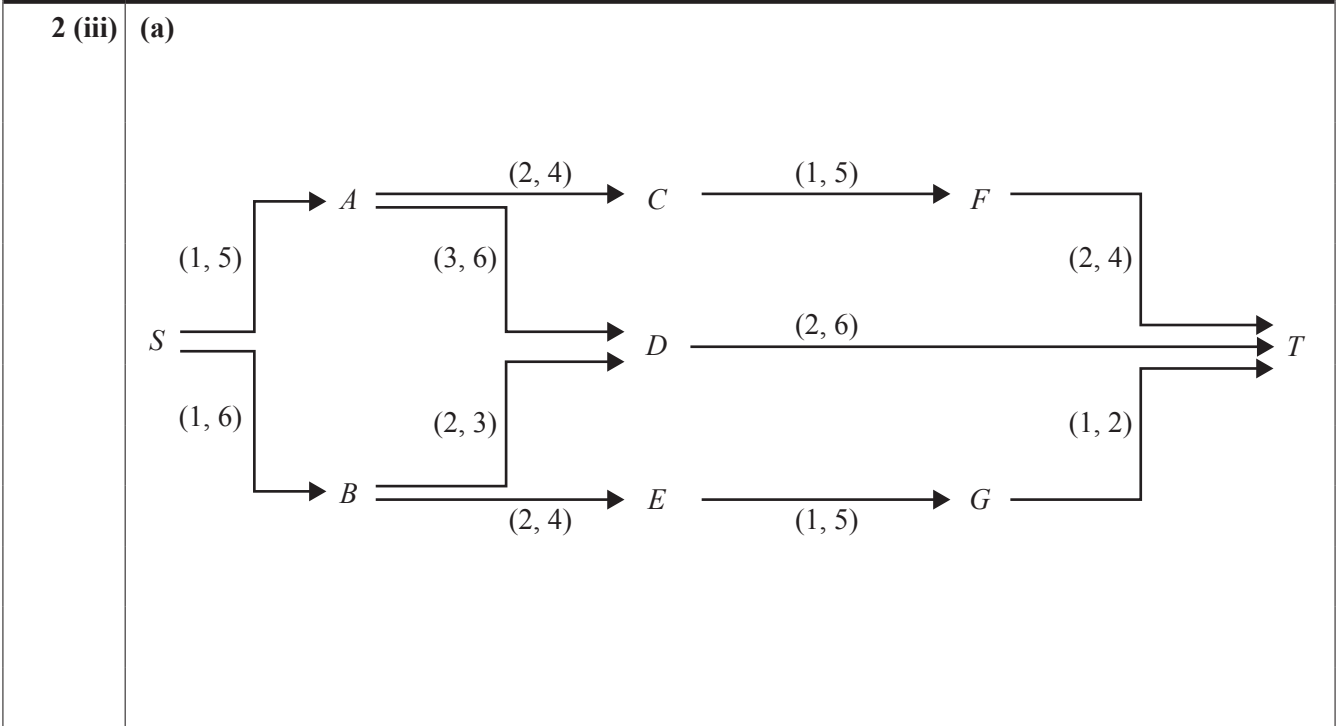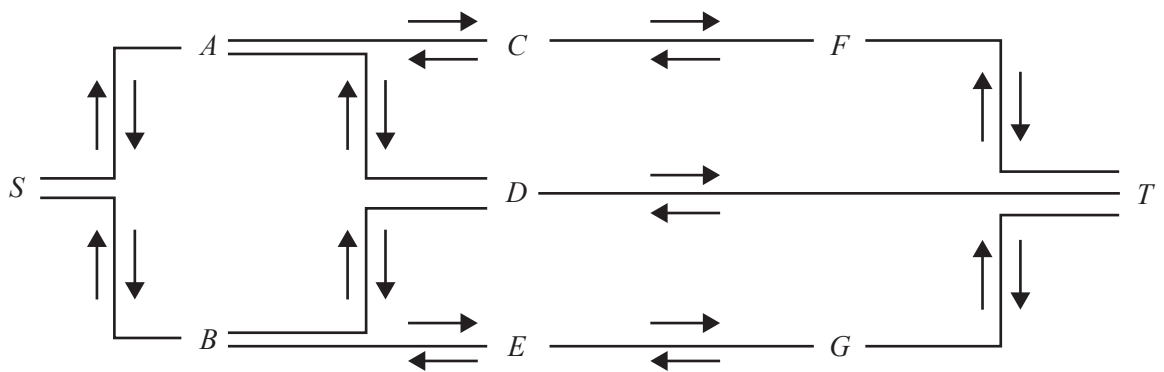
4 (i)	**(a)**
	Play-safe for Leo .... Play-safe for Maya ....
	(b) Maya would win points
	(c) Leo would play card
4 (ii)	**(a)**
	(b) Cards
4 (iii)	She might choose card B because
	She might choose card F because
	She might choose card H because

5 (i)

Stage	State	Action	Working	Suboptimal maximin
3	0	0	4	4
	1	0	3	3
2	0	0	min (2,) =	
		1	min (4,) =	
	1	0	min (3,) =	
		1	min (2,) =	
	2	0	min (5,) =	
		1	min (2,) =	
1	0	0	min (2,) =	
		1	min (5,) =	
	1	1	min (2,) =	
		2	min (2,) =	
0	0	0	min (4,) =	
		1	min (3,) =	

Maximin route: ....

5 (ii)

(0; 0)   to (1; ......) has weight ....   (1; ......) to (2; ......) has weight ....

(2; ......) to (3; ......) has weight ....   (3; ......) to (4; 0)   has weight ....

5 (iii)   **(a)**

(b)   Route:

(c)

Turn over

6 (i)	Property 1:
	Property 2:
	Property 3:

6 (ii)	
	.... should not play in the final
	because

6 (iii)	Famous faces:
	Films:
	Food:
	Football:

6 (iv)	There is a spare copy of this grid on the back page. Tick this box if you want the spare grid to be marked instead of this one.

Value of p = ...

6 (v)

Initial Simplex tableau (you may not need all these rows and columns)

7 (i)

7 (ii)

	0		25		50		75		100		125
Person 1											
Person 2											
nobody											
nobody											

Spare grids (Indicate if you want one of these marked as your answer)

	0		25		50		75		100		125
Person 1											
Person 2											
nobody											
nobody											

	0		25		50		75		100		125
Person 1											
Person 2											
nobody											
nobody											

7 (iii)

Version (1)

Version (2)

Grid, if needed for working

Turn over
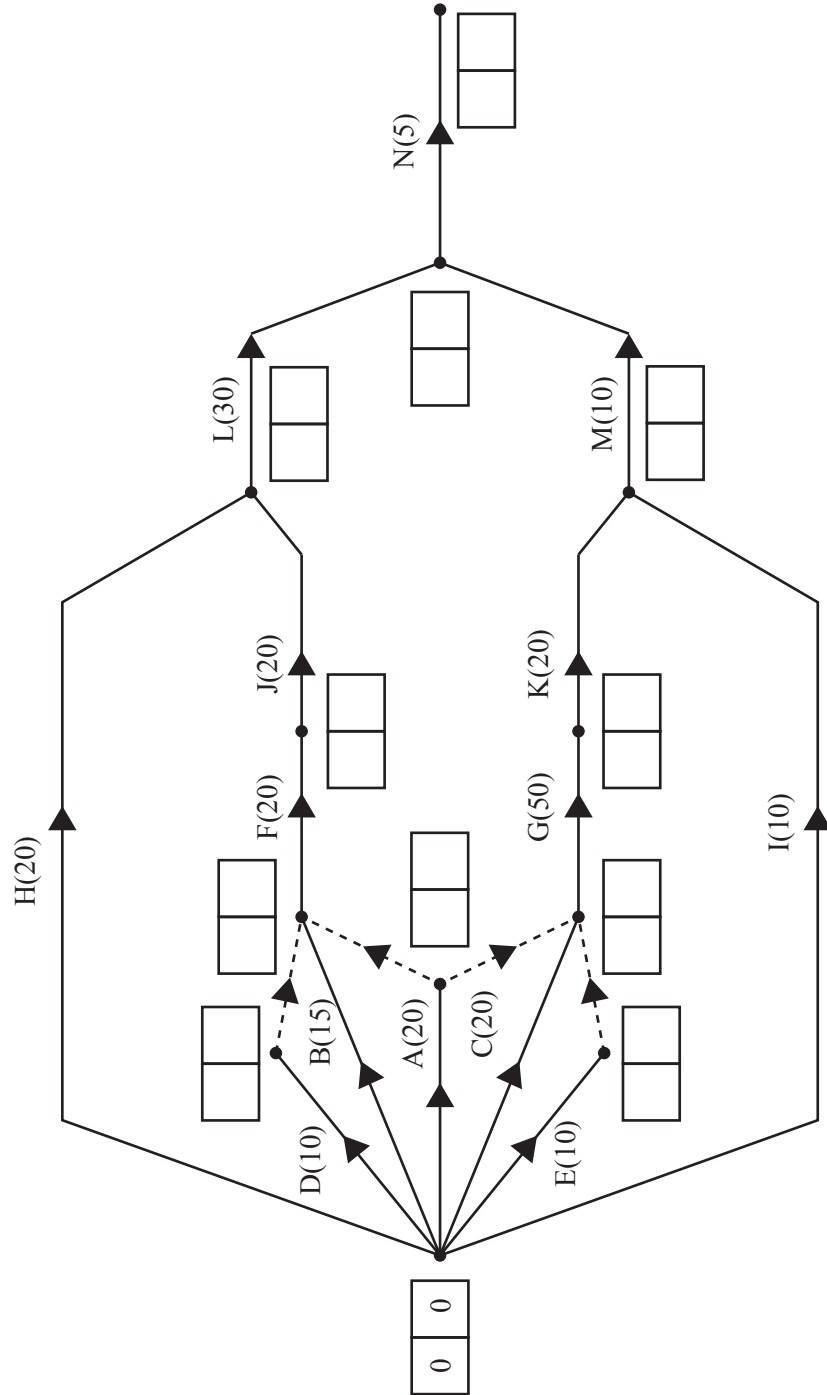
6 (iv)	**SPARE COPY OF GRID**

Value of p = ...

If you want this to be marked as your answer, instead of the first grid, make sure that you have ticked the box on page 8.

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