

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**AS GCE**  
**4737/01**  
**MATHEMATICS**  
**Decision Mathematics 2**  
**PRINTED ANSWER BOOK**  
**WEDNESDAY 23 MAY 2018:**  
**Morning**  
**DURATION: 1 hour 30 minutes**  
**plus your additional time allowance**  
**MODIFIED ENLARGED 24pt**

<b>Candidate forename</b>		<b>Candidate surname</b>	
<b>Centre number</b>			

**Candidates answer on the Printed Answer Book.**

**OCR SUPPLIED MATERIALS:**

**Question Paper 4737/01**  
**List of Formulae (MF1) sent with the**  
**standard paper**

**OTHER MATERIALS REQUIRED:**

**Scientific or graphical calculator**

**READ INSTRUCTIONS OVERLEAF**



## **INSTRUCTIONS TO CANDIDATES**

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

**Write your name, centre number and candidate number on the front page of 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.**

**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.**

<p><b>1 (i)</b></p>	<div> <div>(A) •</div> <div>• (1)</div> </div> <div> <div>(B) •</div> <div>• (2)</div> </div> <div> <div>(C) •</div> <div>• (3)</div> </div> <div> <div>(D) •</div> <div>• (4)</div> </div> <div> <div>(E) •</div> <div>• (5)</div> </div>
<p><b>1 (ii)</b></p>	<div></div> <div></div> <div> <div>(A) •</div> <div>• (1)</div> </div> <div> <div>(B) •</div> <div>• (2)</div> </div> <div> <div>(C) •</div> <div>• (3)</div> </div> <div> <div>(D) •</div> <div>• (4)</div> </div> <div> <div>(E) •</div> <div>• (5)</div> </div>
<p><b>1 (iii)</b></p>	<div></div> <div></div> <div> <div>(A) = _____</div> <div>(B) = _____</div> <div>(C) = _____</div> </div> <div> <div>(D) = _____</div> <div>(E) = _____</div> </div>

<b>1 (iv)</b>	<table><tr><td data-bbox="315 94 1050 296"><b>(A)</b> •</td><td data-bbox="1050 94 2011 296">• <b>(1)</b></td></tr><tr><td data-bbox="315 296 1050 445"><b>(B)</b> •</td><td data-bbox="1050 296 2011 445">• <b>(2)</b></td></tr><tr><td data-bbox="315 445 1050 593"><b>(C)</b> •</td><td data-bbox="1050 445 2011 593">• <b>(3)</b></td></tr><tr><td data-bbox="315 593 1050 742"><b>(D)</b> •</td><td data-bbox="1050 593 2011 742">• <b>(4)</b></td></tr><tr><td data-bbox="315 742 1050 946"><b>(E)</b> •</td><td data-bbox="1050 742 2011 946">• <b>(5)</b></td></tr></table>	<b>(A)</b> •	• <b>(1)</b>	<b>(B)</b> •	• <b>(2)</b>	<b>(C)</b> •	• <b>(3)</b>	<b>(D)</b> •	• <b>(4)</b>	<b>(E)</b> •	• <b>(5)</b>
<b>(A)</b> •	• <b>(1)</b>										
<b>(B)</b> •	• <b>(2)</b>										
<b>(C)</b> •	• <b>(3)</b>										
<b>(D)</b> •	• <b>(4)</b>										
<b>(E)</b> •	• <b>(5)</b>										

2 (i)	
2 (ii)	
2 (iii)	(a)
	(b)(c)(d)
	<p>Augmented route: _____</p> <p>Cut: _____</p>

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)				

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

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	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)					

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

**4 (i)**

(b) Maya would win	points
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<b>4 (ii)</b>	<b>(a)</b>
	<b>(b) Cards</b>
<b>4 (iii)</b>	<b>She might choose card B because</b>
	<b>She might choose card F because</b>
	<b>She might choose card H because</b>

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)

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)

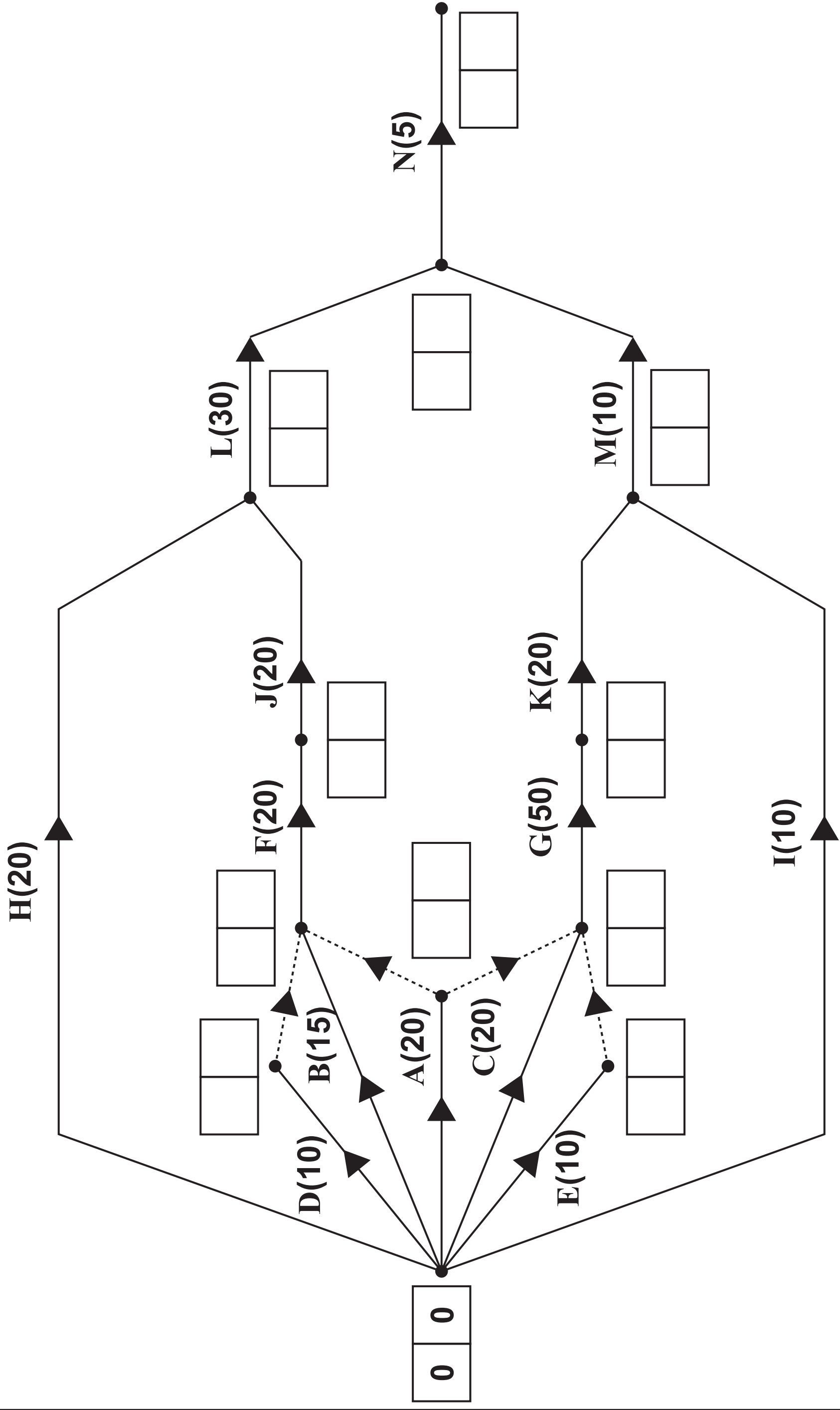
There is a spare copy of this grid on page 21.  
Tick this box if you want the spare grid to be marked instead of this one.

☐


Value of  $p$  = \_\_\_\_\_



6 (v)																																																																																																																																																																									
<b>Initial Simplex tableau (you may not need all these rows and columns)</b>																																																																																																																																																																									
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7 (ii)

0255075100125

Person 1

Person 2

nobody

nobody

0255075100125

Person 1

Person 2

nobody

nobody

0255075100125

Person 1

Person 2

nobody

nobody

0255075100125

Person 1

Person 2

nobody

nobody

7 (iii)	Version (1)		
	Version (2)		
	Grid, if needed for working	<div></div>	

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 16.

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