

**ADVANCED GCE  
MATHEMATICS**

Decision Mathematics 2

INSERT for Questions 4 and 6

**4737**

**Wednesday 26 January 2011  
Afternoon**

**Duration:** 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

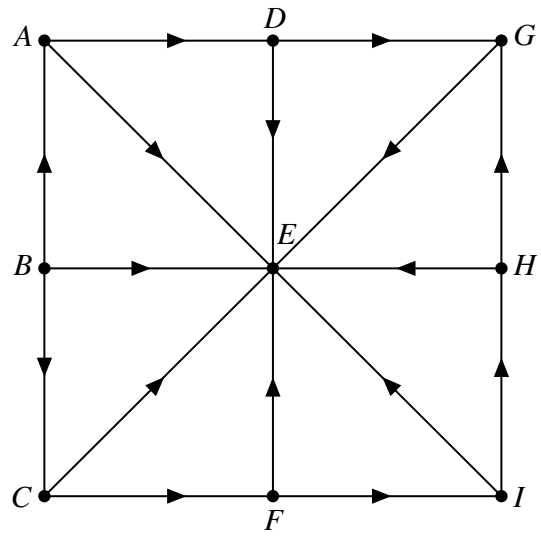
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- This insert should be used to answer Question 4 parts (v) and (vi) and Question 6.
- Write your answers to Question 4 parts (v) and (vi) and Question 6 in the spaces provided in this insert and attach it to your answer booklet.

**INFORMATION FOR CANDIDATES**

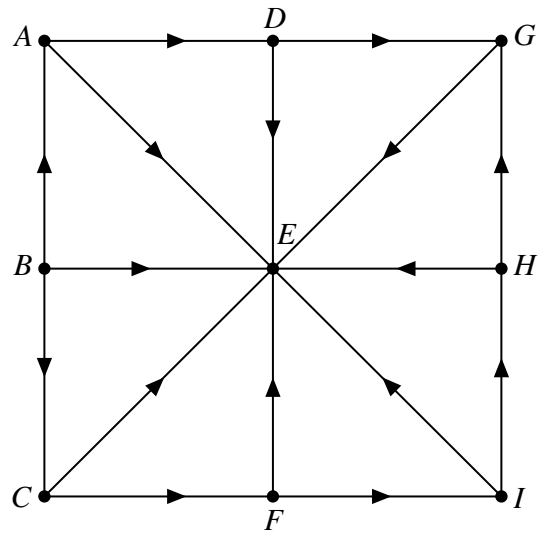
- This document consists of 8 pages. Any blank pages are indicated.

4 (v)

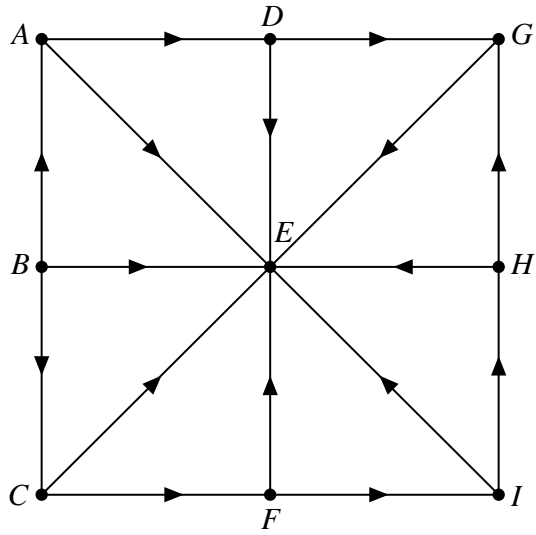
Minimum flow



Maximum flow



(vi) (a)



(b) .....

.....

.....

.....

[Answer Question 6 overleaf.]

6 (i) .....

(ii) .....

(iii) .....

(iv) The table for this part of the question is on the opposite page.

Quickest route .....

Minimum journey time ..... minutes

Stage	State	Action	Working	Suboptimal minimum
4	1(234)	0	10	10
	2(134)	0	14	14
	3(124)	0	12	12
	4(123)	0	17	17
3	1(23)	4(123)	$17 + 6 = 23$	23
	1(24)	3(124)	$12 + 2 = 14$	14
	1(34)	2(134)	$14 + 3 = 17$	17
	2(13)	4(123)	$17 + 4 = 21$	21
	2(14)	3(124)	$12 + 2 = 14$	14
	2(34)	1(234)	$10 + 3 = 13$	13
	3(12)	4(123)	$17 + 3 = 20$	20
	3(14)	2(134)	$14 + 2 = 16$	16
	3(24)	1(234)	$10 + 2 = 12$	12
	4(12)	3(124)	$12 + 3 = 15$	15
	4(13)	2(134)	$14 + 4 = 18$	18
	4(23)	1(234)	$10 + 6 = 16$	16
2	1(2)	3(12) 4(12)	$20 + 2 = 22$ $15 + 6 = 21$	21
	1(3)	2(13) 4(13)	$21 + 3 = 24$ $18 + 6 = 24$	24
	1(4)			
	2(1)			
	2(3)			
	2(4)			
	3(1)			
	3(2)			
	3(4)			
	4(1)			
	4(2)			
	4(3)			
1	1			
	2			
	3			
	4			
0	0	1 2 3 4		

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