

Centre No.						Paper Reference						Surname	Initial(s)	
Candidate No.						6	6	9	0	/	0	1	Signature	

Paper Reference(s)

6690/01

Edexcel GCE

Decision Mathematics D2

Advanced/Advanced Subsidiary

Monday 13 June 2011 – Morning

Answer Book

Do not return the question paper with the answer book

Examiner's use only

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Team Leader's use only

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Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
Total	

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P 3 5 4 1 9 A 0 1 1 6

Turn over

1. (a)

	A	B	C	D	E	F
A	-	19	11	23	20	
B	19	-	8		17	32
C	11	8	-		9	26
D	23			-	27	31
E	20	17	9	27	-	17
F		32	26	31	17	-

Table of least distances

(b)

	A	B	C	D	E	F
A	-	19	11	23	20	
B	19	-	8		17	32
C	11	8	-		9	26
D	23			-	27	31
E	20	17	9	27	-	17
F		32	26	31	17	-

Table of least distances

(c)



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Question 1 continued

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(Total 10 marks)

Q1

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2. (a)

	A	B	C	Dummy	Supply
1	31	29	32		20
2	22	33	27		22
3	25	27	32		20
4	23	26	38		38
Demand	35	25	30		

Table 1

(b)

	A	B	C	D
1	20			
2	15	7		
3		18	2	
4			28	10

Table 2

	A	B	C	D
1	×	-13		-9
2	×	×	-11	
3		×	×	
4	1	-7	×	×

Table 3

(c)

You may not need to use all these tables

	A	B	C	D
1				
2				
3				
4				



Question 2 continued

	A	B	C	D
1				
2				
3				
4				

	A	B	C	D
1				
2				
3				
4				

	A	B	C	D
1				
2				
3				
4				

	A	B	C	D
1				
2				
3				
4				

	A	B	C	D
1				
2				
3				
4				

(Total 9 marks)

Q2



3. (a) _____

(b)

b.v.	x	y	z	r	s	t	Value
r	$-\frac{1}{2}$	0	2	1	$-\frac{1}{2}$	0	10
y	$\frac{1}{2}$	1	$\frac{3}{4}$	0	$\frac{1}{4}$	0	5
t	$\frac{1}{2}$	0	1	0	$-\frac{1}{4}$	1	4
P	-7	0	1	0	4	0	320

You may not need to use all of these tableaux

b.v.	x	y	z	r	s	t	Value	Row Ops
P								

b.v.	x	y	z	r	s	t	Value	Row Ops
P								

b.v.	x	y	z	r	s	t	Value	Row Ops
P								



Question 3 continued

b.v.	<i>x</i>	<i>y</i>	<i>z</i>	<i>r</i>	<i>s</i>	<i>t</i>	Value	Row Ops
<i>P</i>								

b.v.	<i>x</i>	<i>y</i>	<i>z</i>	<i>r</i>	<i>s</i>	<i>t</i>	Value	Row Ops
<i>P</i>								

(c)

(Total 10 marks)

Q3

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4.

	S plays 1	S plays 2	S plays 3
L plays 1	-4	-1	1
L plays 2	3	-1	-2
L plays 3	-3	0	2



5 (a) $a =$ _____, $b =$ _____, $c =$ _____, value of initial flow: _____

(b)

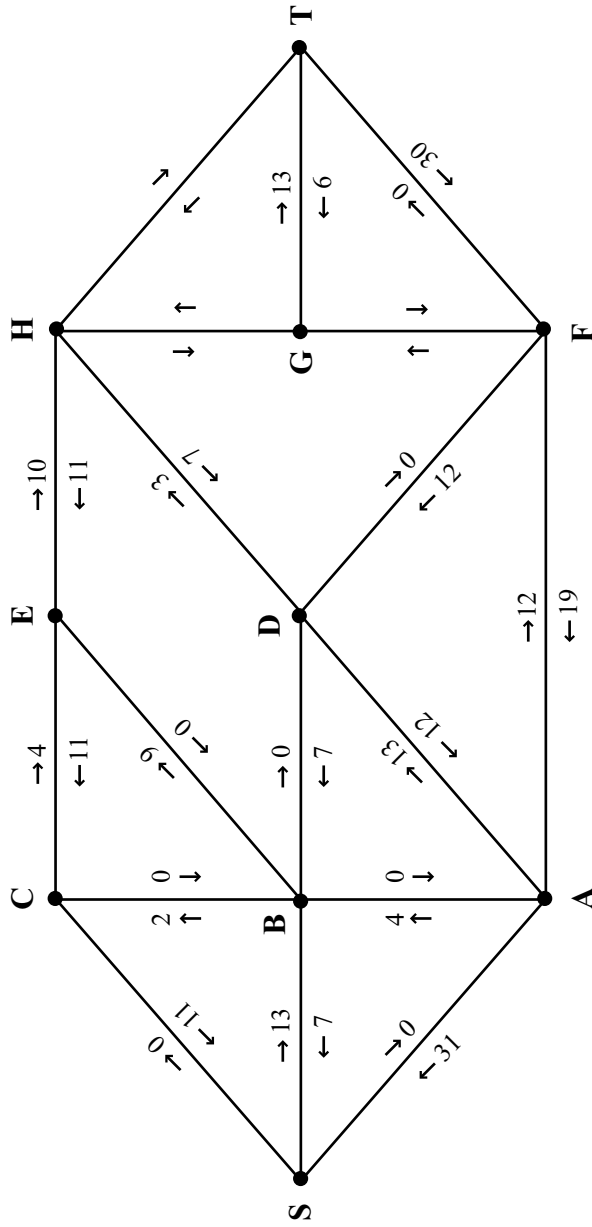


Diagram 1



Question 5 continued

(c) _____

(d) Value of maximum flow: _____

(e)

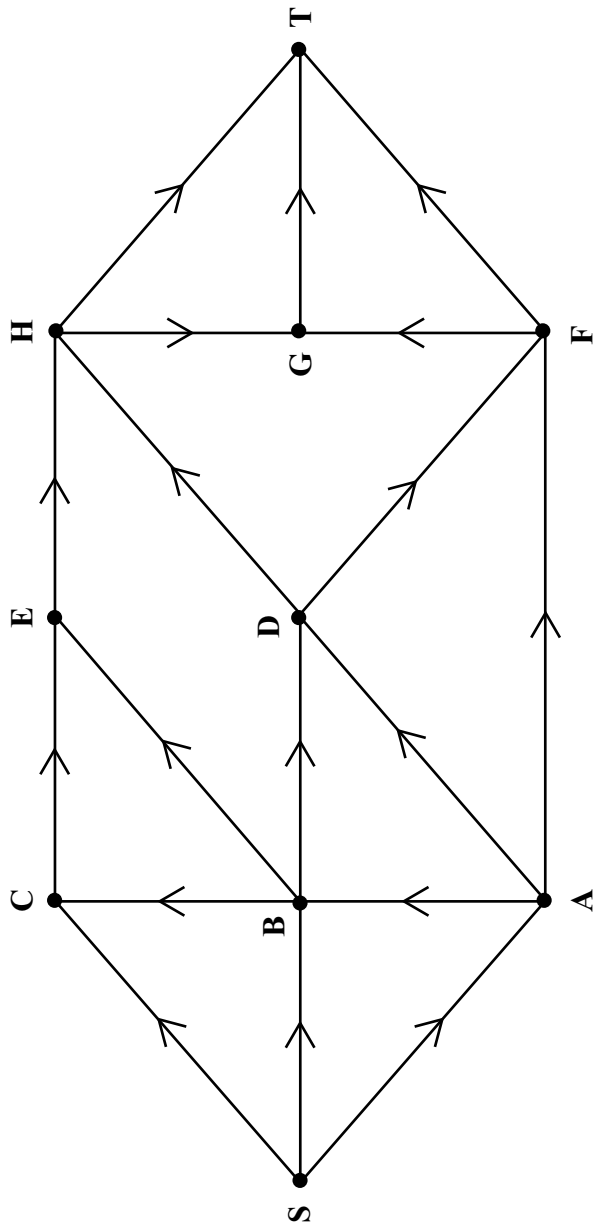


Diagram 2

(f) _____

(Total 15 marks)

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Question 6 continued

(b)

	Task A	Task B	Task C
Worker P	33	37	31
Worker Q	32	36	40
Worker R	41	35	38

Table 2

	Task A	Task B	Task C
Worker P			
Worker Q			
Worker R			

(Total 9 marks)

Q6



P 3 5 4 1 9 A 0 1 3 1 6

Question 7 continued

Stage	State	Action	Destination	Value

Optimal expected income: _____

(b) _____

Q7

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(Total 13 marks)

TOTAL FOR PAPER: 75 MARKS

END

