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

Thursday 6 June 2013 – Morning

Answer Book

Do not return the question paper with the answer book

Examiner's use only

Team Leader's use only

Question Number	Leave Blank
1	
2	
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4	
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6	
7	
Total	

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P 4 1 8 1 8 R A 0 1 1 6

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PEARSON

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1. (a)

	A	B	C	D	E
A	–	15	19	25	20
B	15	–	15	15	25
C	19	15	–	22	11
D	25	15	22	–	18
E	20	25	11	18	–

(b)

(c)

	A	B	C	D	E
A	–	15	19	25	20
B	15	–	15	15	25
C	19	15	–	22	11
D	25	15	22	–	18
E	20	25	11	18	–

Leave blank

Question 1 continued

(d)

(e)

	A	B	C	D	E
A	–	15	19	25	20
B	15	–	15	15	25
C	19	15	–	22	11
D	25	15	22	–	18
E	20	25	11	18	–

(f)

Q1

(Total 12 marks)

Leave blank

2.

	1	2	3	Supply
A	10	11	20	18
B	15	7	13	14
C	24	15	12	21
D	9	21	18	12
Demand	27	18	20	

(a)

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

Leave blank

Question 2 continued

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

	1	2	3	Supply
A				18
B				14
C				21
D				12
Demand	27	18	20	

(Total 10 marks)

Q2

3.

(a) Value of initial flow _____ (b) Capacity of cut _____

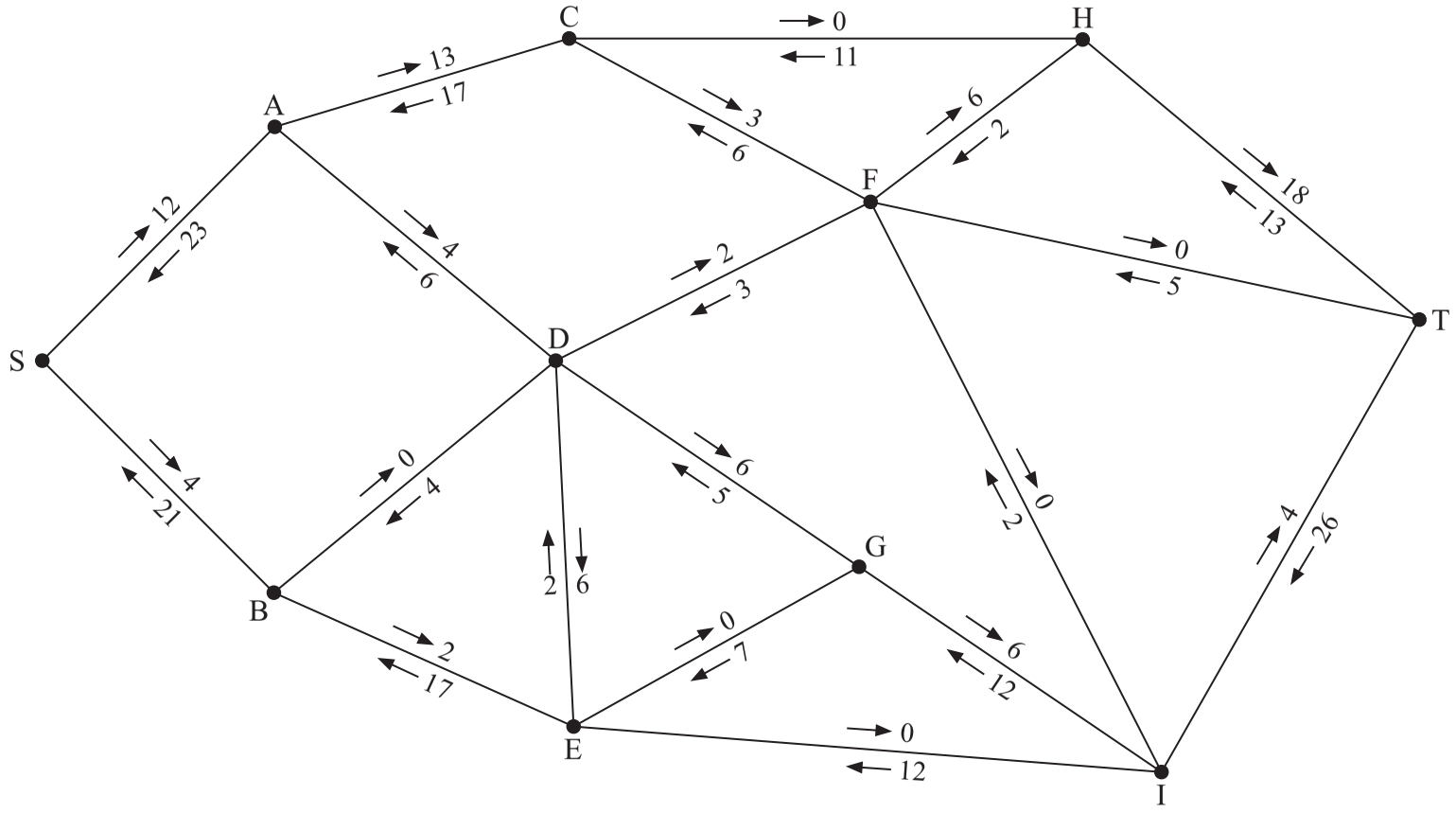

Diagram 1

Leave blank

Question 3 continued

(c)

(d)

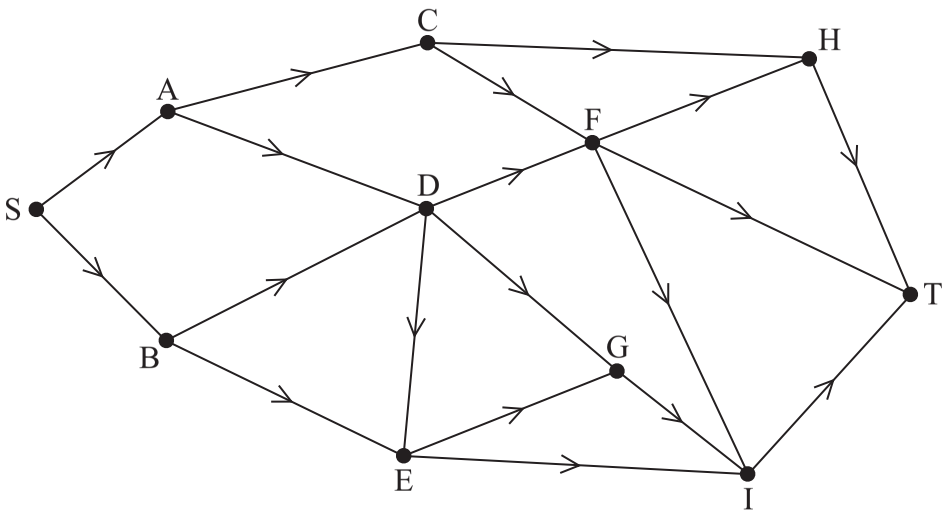

Diagram 2

(e)

(Total 10 marks)

Q3

Leave blank

Turn over

P 4 1 8 1 8 R A 0 7 1 6

Leave blank

4.

	B plays 1	B plays 2	B plays 3
A plays 1	5	4	–6
A plays 2	–1	–2	3
A plays 3	1	–1	2

Leave blank

Question 4 continued

Q4

(Total 11 marks)

Leave blank

5. (a)

b.v.	x	y	z	r	s	t	Value
r	–1	2	0	1	0	1	8
s	–1	3	0	0	1	1	22
z	–2	1	1	0	0	1	11
P	2	–5	0	0	0	$\frac{1}{2}$	15

(b) *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								

P 4 1 8 1 8 R A 0 1 0 1 6

Leave blank

Question 5 continued

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								

(c)

Q5

(Total 11 marks)

Leave blank

6.

	Task 1	Task 2	Task 3
Harriet	251	243	257
Jason	244	247	255
Katherine	249	252	246

Leave blank

Question 6 continued

Q6

(Total 8 marks)

Leave blank

7. *You may not need to use all the rows in this table*

Stage	**State** (Age of fleet of bicycles at start of year)	**Action** (Keep or Replace)	**Dest.** (Age of fleet of bicycles at end of year)	**Value** (Profit)
End of Year 4	4	(Sell)	-	1*
	3	(Sell)	-	2*
	2	(Sell)	-	4*
	1	(Sell)	-	6*
Year 4	3	Keep	4	1 + 2 – 3 = 0
		Replace	1	6 + 11 – 9 = 8*
	2			

P 4 1 8 1 8 R A 0 1 4 1 6

Leave blank

Question 7 continued

Stage	**State** (Age of fleet of bicycles at start of year)	**Action** (Keep or Replace)	**Dest.** (Age of fleet of bicycles at end of year)	**Value** (Profit)

Start of year	First year	Second year	Third year	Fourth year
Keep/Replace?				

Total profit

Q7

(Total 13 marks)

TOTAL FOR PAPER: 75 MARKS

END

P 4 1 8 1 8 R A 0 1 5 1 6