

Centre No.					
Candidate No.					

Paper Reference (complete below)					
<b>6</b>	<b>6</b>	<b>8</b>	<b>9</b>	<b>/</b>	<b>0 1</b>

Surname	Initial(s)
Signature	

Paper Reference(s)

**6689/01**

**Edexcel GCE**

**Decision Mathematics D1**

**Advanced/Advanced Subsidiary**

**November 2002**

**Answer Booklet**

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1. (a)  $A, X, D, V, \dots$

(b)

**(Total 4 marks)**

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2. (a)

(b) .....

.....

.....

**(Total 6 marks)**

*leave blank*

3. (a) A• •C A• •C  
G• •F G• •F  
J• •W J• •W  
L• •D L• •D  
N• •S N• •S

(b) .....  
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(c) .....  
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**(Total 7 marks)**

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4. (a) .....

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(b) .....

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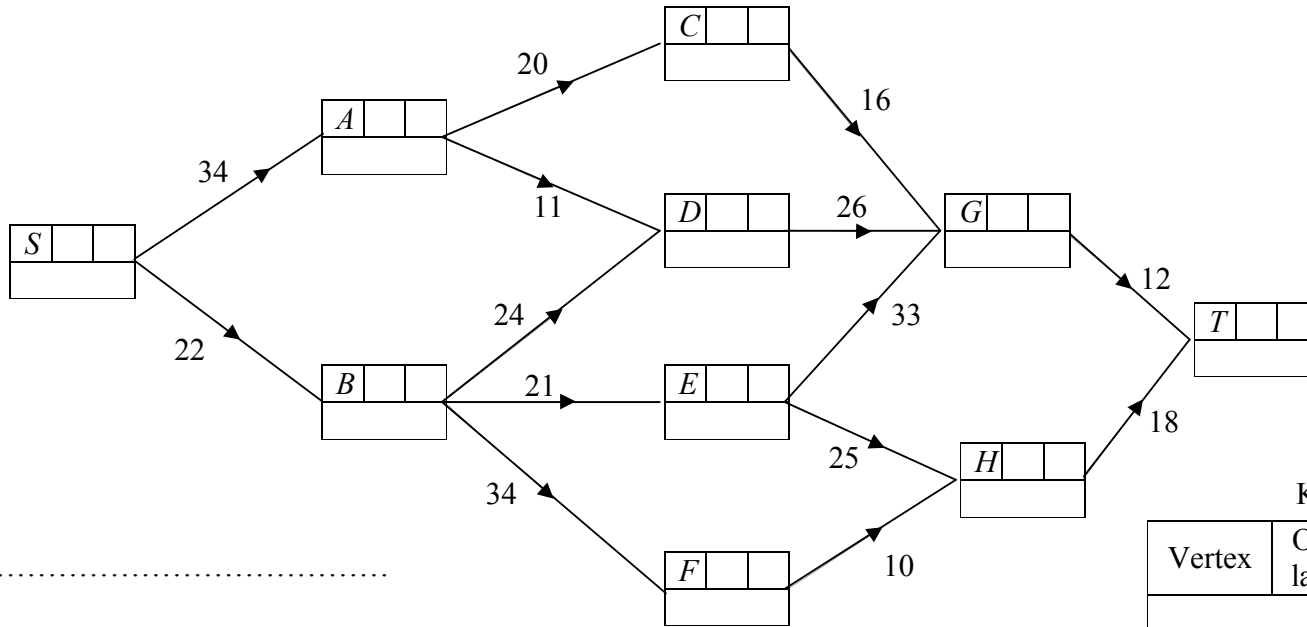
.....

Length of route: .....

.....

**(Total 7 marks)**

5. (a)



Route: .....

Length: .....

Key		
Vertex	Order of labelling	Final label
Working values		

(b) .....

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(c) .....

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(Total 10 marks)

Turn over

leave blank

leave  
blank

6. (a) .....

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(b) .....

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(c) .....

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**(Total 10 marks)**

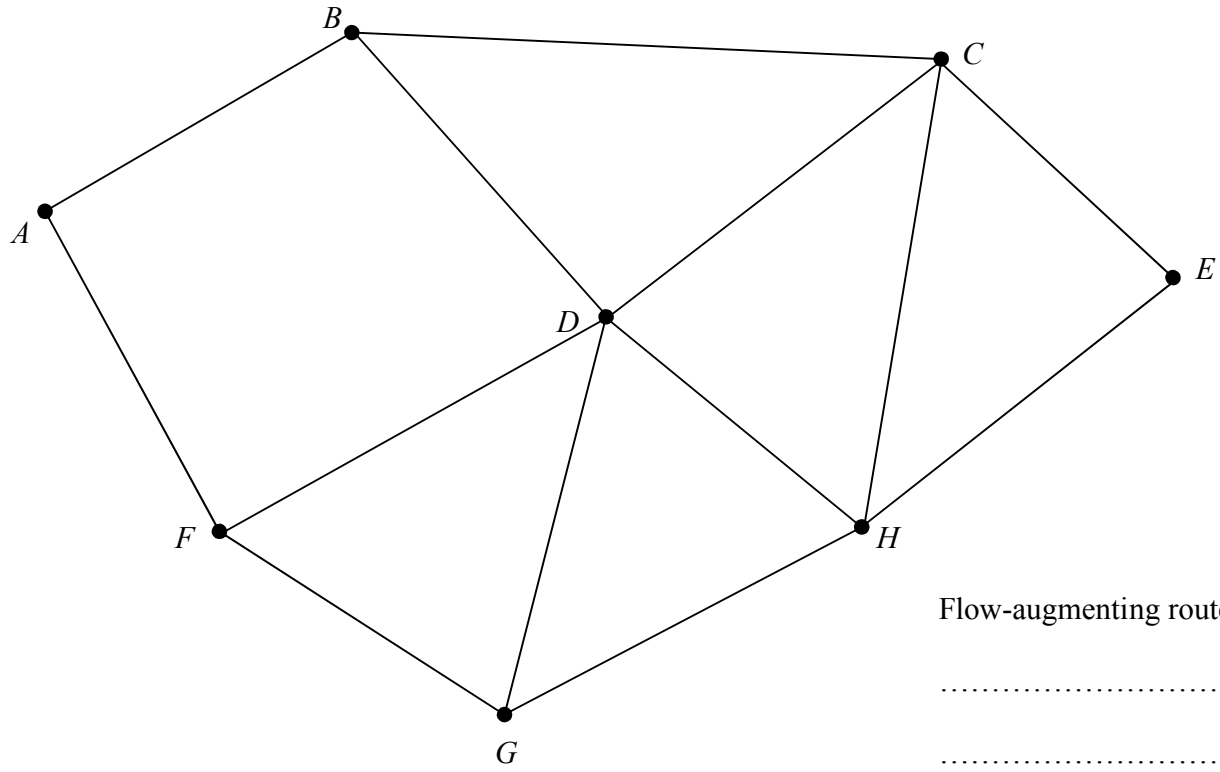
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**TURN OVER FOR ANSWER SHEET TO QUESTION 7**

7. (a) .....
- (b) .....
- (c)

**Diagram 1**



Flow-augmenting routes

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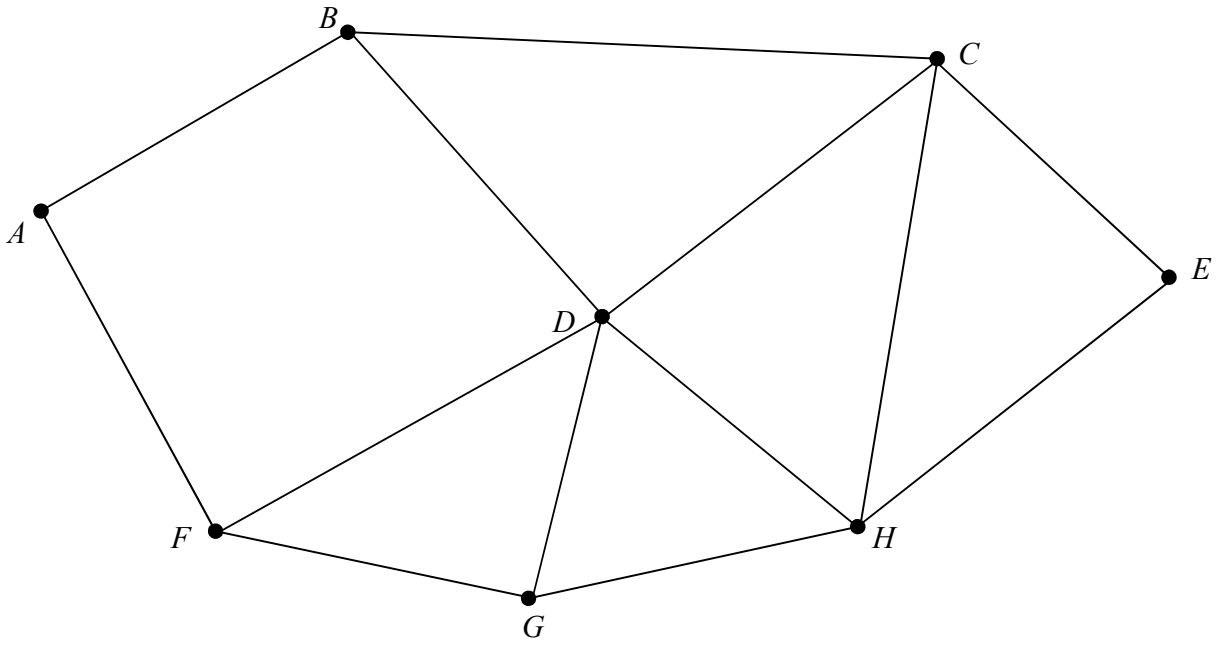
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(d)

Diagram 2



Maximum flow: .....

(e)

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Turn over

(Total 14 marks)

leave  
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8. (a) .....

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(b) *You may not need to use all of these tableaux*

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

*leave  
blank*

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

Basic variable	$x$	$y$	$z$	$r$	$s$	$t$	Value

Solution .....

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*leave  
blank*

(c) .....  
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**(Total 17 marks)**

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**TOTAL FOR PAPER: 75 MARKS**