

Paper Reference 9FM0/3D

Pearson Edexcel

Level 3 GCE

Further Mathematics

Advanced

PAPER 3D: Decision Mathematics 1

Friday 20 June 2025 – Afternoon

Time: 1 hour 30 minutes

Answer Booklet

Total Marks

THIS DOCUMENT MUST BE RETURNED TO
PEARSON AT THE END OF THE EXAMINATION.

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

1.

4·7	2·9	5·5	1·4	5·8	2·8
3·8	6·5	5·1	6·3	4·1	

Answer lines continue on the next two pages.

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Turn over

3

1. continued.

4.7

2.9

5·5

1.4

5.8

2.8

3 · 8

6.5

5.1

6.3

4.1

Turn over

4

1. continued.

4.7

2.9

5 • 5

1.4

5.8

2.8

3.8

6.5

5.1

6.3

4.1

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(Total for Question 1 is 5 marks)

Turn over

2.

271	828	182	845	904
523	536	028	747	135

Answer lines continue on the next three pages.

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Turn over

2. continued.

271 828 182 845 904

523 536 028 747 135

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Turn over

2. continued.

271 828 182 845 904

523 536 028 747 135

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Turn over

2. continued.

271	828	182	845	904
523	536	028	747	135

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Turn over

2. continued.

(c) Refer to Diagram 1 in the Diagram Booklet.

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

It may not be necessary to complete all boxes in each row.

Answer lines continue on the next two pages.

Output: _____

2. continued.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Turn over

2. continued.

(Total for Question 2 is 10 marks)

3. Refer to Diagram 2, Diagram 3 and Diagram 4 in the Diagram Booklet.

(a) Initial time matrix

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. (a) continued.

Spare copy for Initial time matrix

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. continued.

(b) Fourth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

3. (b) continued.

Spare copy for Fourth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

3. (b) continued.
Fifth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

3. (b) continued.

Spare copy for Fifth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

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Turn over

3. continued.

Answer lines continue on the next two pages.

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Turn over

3. continued.

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Turn over

3. continued.

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(Total for Question 3 is 10 marks)

Turn over

4. Refer to Diagram 5 and Diagram 6 in the Diagram Booklet.

Answer lines continue on the next eight pages.

Turn over

4. continued.

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Turn over

4. continued.

[illegible]

Turn over

4. continued.

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Turn over

4. continued.

[illegible]

Turn over

4. continued.

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Turn over

4. continued.

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Turn over

4. continued.

[illegible]

Turn over

4. continued.

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(Total for Question 4 is 13 marks)

Turn over

5. Refer to Diagram 7 in the Diagram Booklet.

Answer lines continue on the next three pages.

[illegible]

Turn over

5. continued.

[illegible]

Turn over

5. continued.

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5. continued.

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5. continued.

(e) (i)

b.v.	X	Y	Z	s_1	s_2	s_3	Value
X	1	0	$-\frac{3}{4}$	$\frac{1}{8}$	0	$-\frac{1}{4}$	$\frac{5}{8}$
s_2	0	0	$\frac{9}{4}$	$\frac{1}{8}$	1	$\frac{3}{4}$	$\frac{117}{8}$
Y	0	1	$-\frac{1}{4}$	$\frac{3}{8}$	0	$\frac{1}{4}$	$\frac{63}{8}$
Q	0	0	$-\frac{5}{4}$	$\frac{15}{8}$	0	$\frac{1}{4}$	$\frac{267}{8}$

(continued on the next page)

Turn over

5. (e) (i) continued.

b.v.	X	Y	Z	s ₁	s ₂	s ₃	Value	Row Ops
Q								

(continued on the next page)

5. continued.

(e) (i) Spare copy

b.v.	X	Y	Z	S ₁	S ₂	S ₃	Value	Row Ops
Q								

(continued on the next page)

5. continued.
(e) (ii)

(Total for Question 5 is 12 marks)

6. Refer to Diagram 8, Diagram 9, Diagram 10 and Diagram 11 in the Diagram Booklet.

(a) Table 1

Activity	Immediately preceding activities
A	
B	
C	
D	
E	
F	

Activity	Immediately preceding activities
G	
H	
I	
J	
K	
L	
M	

(continued on the next page)

6. (a) continued.

Spare copy for Table 1

Activity	Immediately preceding activities
A	
B	
C	
D	
E	
F	

Activity	Immediately preceding activities
G	
H	
I	
J	
K	
L	
M	

(continued on the next page)

6. continued.
(d)

(continued on the next page)

6. (d) continued.

Table 2

Activity	Number of Workers
A	
B	
C	
D	
E	
F	

Activity	Number of Workers
G	
H	
I	
J	
K	
L	
M	

(continued on the next page)

6. (d) continued.

Spare copy for Table 2

Activity	Number of Workers	Activity	Number of Workers
A		G	
B		H	
C		I	
D		J	
E		K	
F		L	
		M	

(Total for Question 6 is 13 marks)

7. Refer to Diagram 12 and Diagram 13 in the Diagram Booklet.

Answer lines continue on the next three pages.

[illegible]

Turn over

7. continued.

[illegible]

Turn over

7. continued.

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Turn over

7. continued.

(continued on the next page)

7. continued.

b.v.																			Value
P																			

(continued on the next page)

7. continued.

Spare copy

b.v.					P
Value					

7. continued.

Answer lines continue on the next five pages.

[illegible]

Turn over

7. continued.

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Turn over

7. continued.

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Turn over

7. continued.

[illegible]

Turn over

7. continued.

[illegible]

Turn over

7. continued.

(Total for Question 7 is 12 marks)



TOTAL FOR PAPER IS 75 MARKS

END OF PAPER