

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel Level 3 GCE

Friday 20 June 2025

Afternoon (Time: 1 hour 30 minutes)

**Paper
reference**

9FM0/3D

Further Mathematics

Advanced

PAPER 3D: Decision Mathematics 1

Answer Book

Do not return the question paper with the answer book.

Total Marks

Turn over ►

P74082A

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Pearson

1.

4.7 2.9 5.5 1.4 5.8 2.8 3.8 6.5 5.1 6.3 4.1

(Total for Question 1 is 5 marks)



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271 828 182 845 904 523 536 028 747 135



P 7 4 0 8 2 A 0 3 2 0

3.

(a) Initial time matrix

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

(b) Fourth iteration

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

Fifth iteration

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



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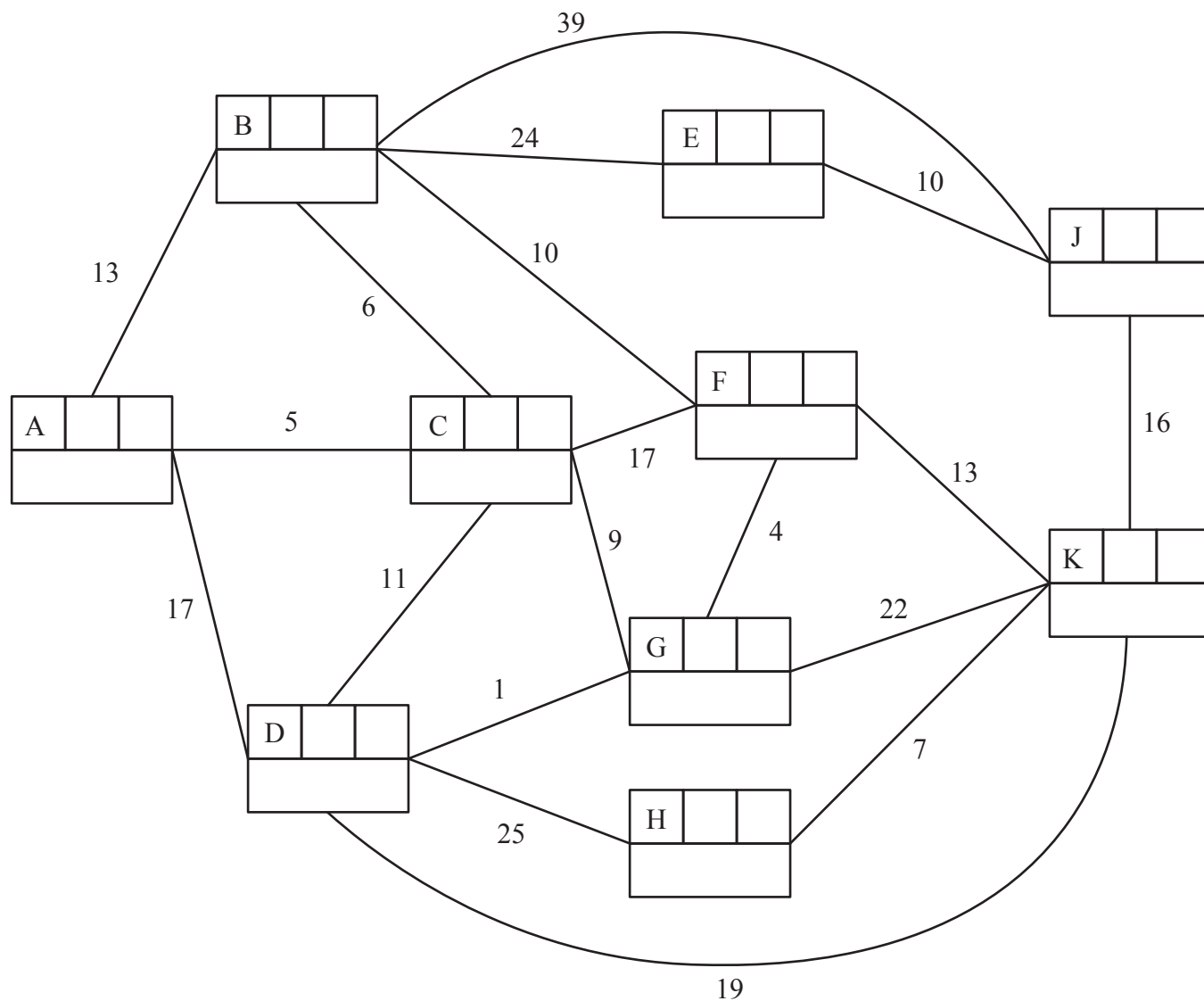
Question 3 continued

Lined area for writing answers.

(Total for Question 3 is 10 marks)



4.

**Key:**

Vertex	Order of labelling	Final value
Working value		

Shortest route from J to K via A: _____

Length of shortest route from J to K via A: _____



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Question 4 continued

Lined area for writing the answer to Question 4.



Question 4 continued

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

Question 4 continued

Lined area for writing answers.

(Total for Question 4 is 13 marks)



5.

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Question 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	$\frac{1}{4}$	$\frac{267}{8}$

b.v.	X	Y	Z	s_1	s_2	s_3	Value	Row Ops
Q								

(e) (ii)

(Total for Question 5 is 12 marks)

6. (a)

Activity	Immediately preceding activities
A	
B	
C	
D	
E	
F	

Activity	Immediately preceding activities
G	
H	
I	
J	
K	
L	
M	

Table 1

Key:

Early event time
Late event time

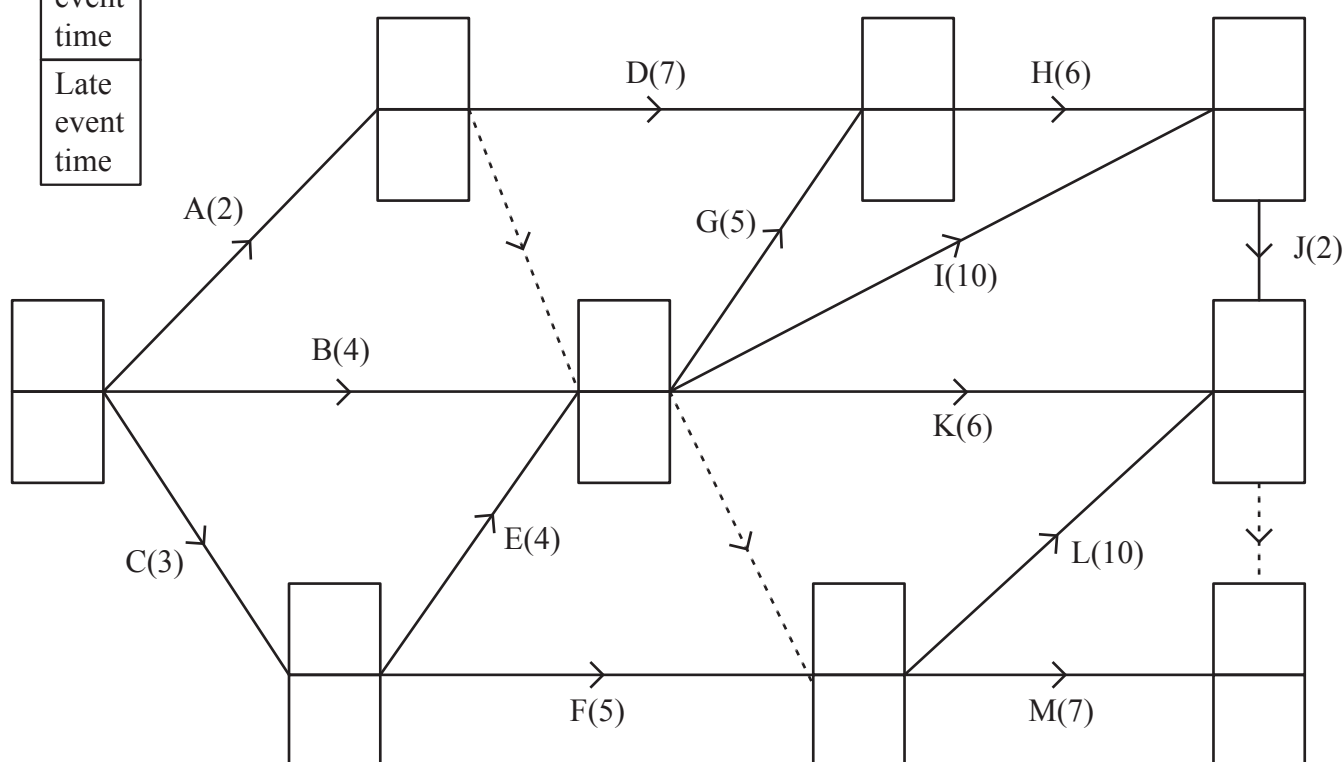


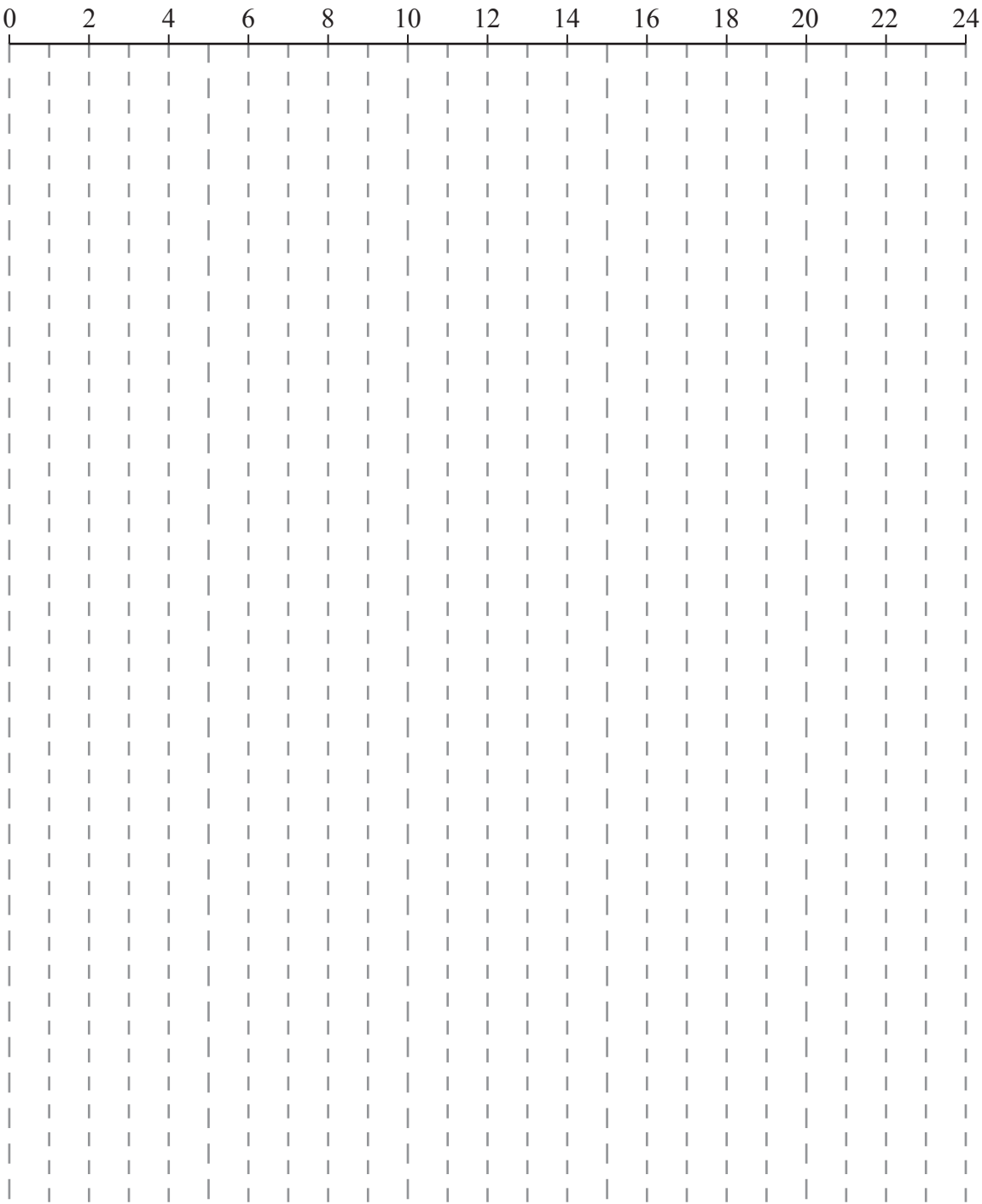
Diagram 1



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Question 6 continued

(c)



Question 6 continued

(d)

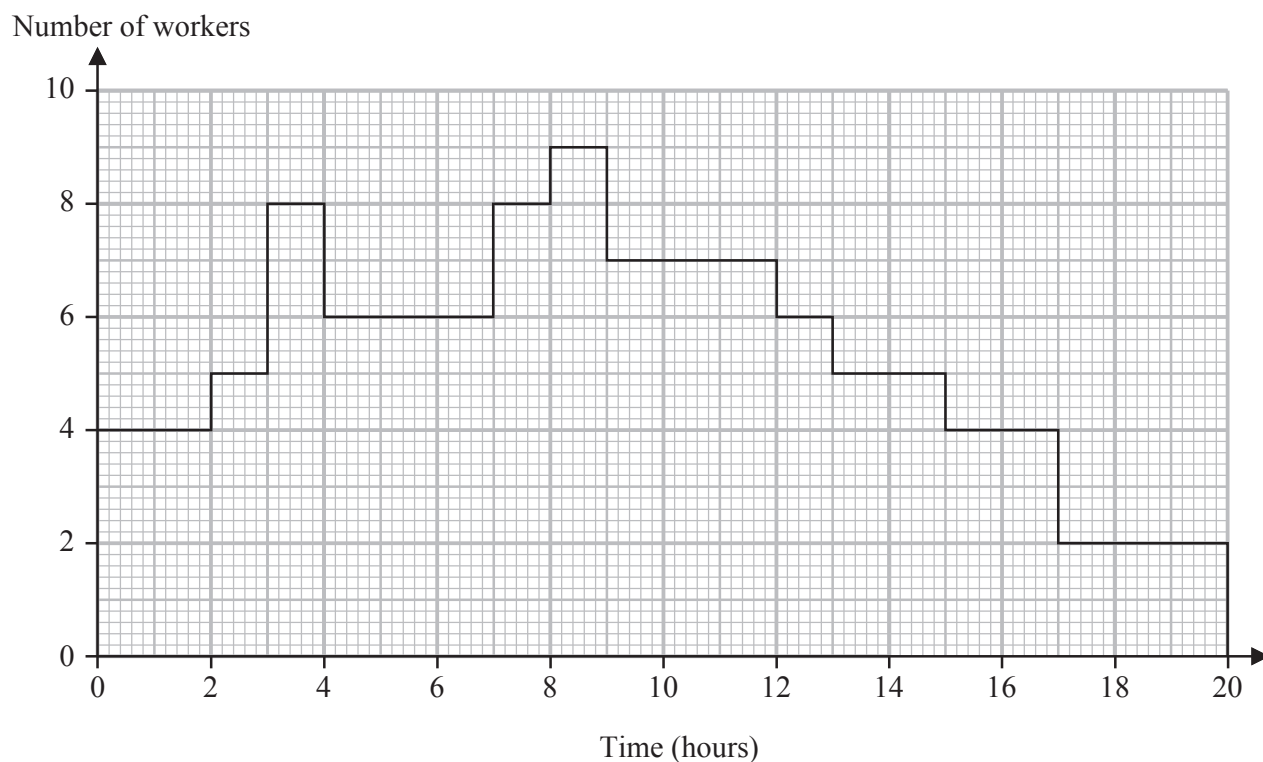
You may use the following resource histogram for working.

Figure 4

Activity	Number of Workers
A	
B	
C	
D	
E	
F	

Activity	Number of Workers
G	
H	
I	
J	
K	
L	
M	

Table 2

(Total for Question 6 is 13 marks)

7.

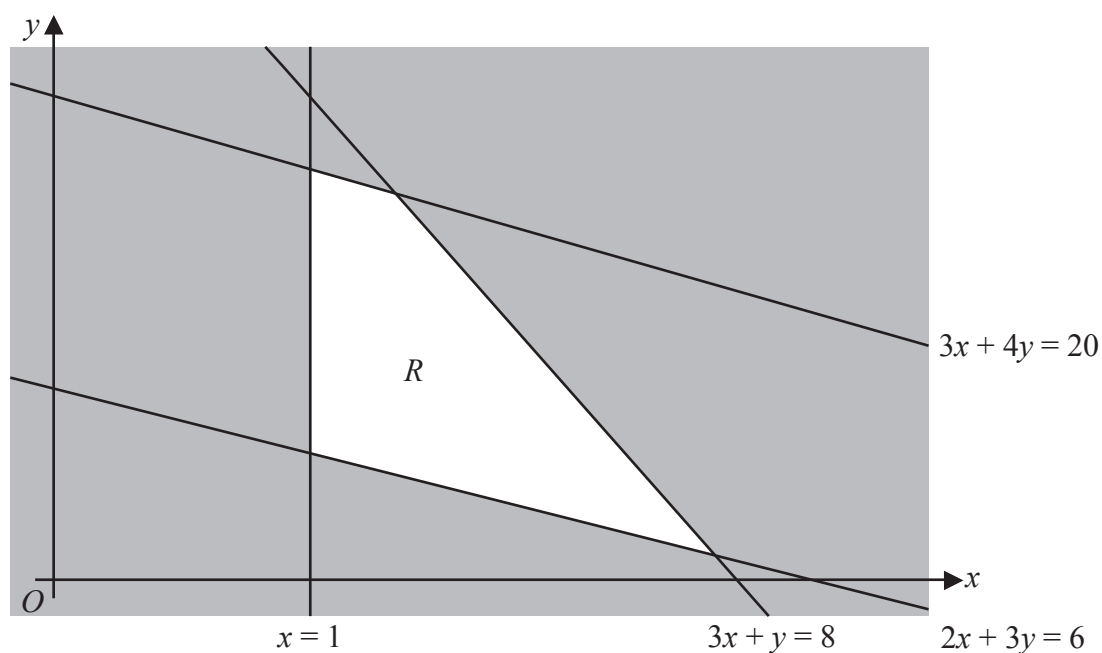


Figure 5

The tableau can be found at the bottom of page 18.

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DO NOT WRITE IN THIS AREA

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b.v.									Value
P									



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Question 7 continued

Lined area for writing the answer to Question 7.



Question 7 continued

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 7 is 12 marks)

TOTAL FOR PAPER IS 75 MARKS

