

Wednesday 15 June 2016 – Morning

AS GCE MATHEMATICS (MEI)

4771/01 Decision Mathematics 1

PRINTED ANSWER BOOK

Candidates answer on this Printed Answer Book.

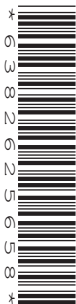
OCR supplied materials:

- Question Paper 4771/01 (inserted)
- MEI Examination Formulae and Tables (MF2)

Other materials required:

- Scientific or graphical calculator

Duration: 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

These instructions are the same on the Printed Answer Book and the Question Paper.

- The Question Paper will be found inside the Printed Answer Book.
- Write your name, centre number and candidate number in the spaces provided on the Printed Answer Book. Please write clearly and in capital letters.
- **Write your answer to each question in the space provided in the Printed Answer Book.** Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- You are permitted to use a scientific or graphical calculator in this paper.
- Final answers should be given to a degree of accuracy appropriate to the context.

INFORMATION FOR CANDIDATES

This information is the same on the Printed Answer Book and the Question Paper.

- The number of marks is given in brackets [] at the end of each question or part question on the Question Paper.
- You are advised that an answer may receive **no marks** unless you show sufficient detail of the working to indicate that a correct method is being used.
- The total number of marks for this paper is **72**.
- The Printed Answer Book consists of **16** pages. The Question Paper consists of **8** pages. Any blank pages are indicated.

1 (i)	
1 (ii)	
1 (iii) Random digits	1 6 4
	8 6 4
	8 7 4
	3 1 1
	5 3 2
1 (iv)	

2 (i)	
2 (ii)	
2 (iii)	
2 (iv)	

<p>3 (i)</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding: 10px;"> <p>Adjacency graph</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p> </td> <td style="width: 50%; vertical-align: top; padding: 10px;"> <p>Complement</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p> </td> </tr> <tr> <td colspan="2" style="padding: 10px;"> <p>Minimum number of colours</p> </td> </tr> </table>	<p>Adjacency graph</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p>	<p>Complement</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p>	<p>Minimum number of colours</p>			
<p>Adjacency graph</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p>	<p>Complement</p> <p style="text-align: center;">front ● ● back</p> <p style="text-align: center;">left ● ● right</p> <p style="text-align: center;"> ● base</p>						
<p>Minimum number of colours</p>							
<p>3 (ii)(A)</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding: 10px;"> <p>Adjacency graph</p> <p style="text-align: center;">top front ● ● top back</p> <p style="text-align: center;">top left ● ● top right</p> <p style="text-align: center;">base left ● ● base right</p> <p style="text-align: center;">base front ● ● base back</p> </td> <td style="width: 50%; vertical-align: top; padding: 10px;"> <p>Complement</p> <p style="text-align: center;">top front ● ● top back</p> <p style="text-align: center;">top left ● ● top right</p> <p style="text-align: center;">base left ● ● base right</p> <p style="text-align: center;">base front ● ● base back</p> </td> </tr> </table>	<p>Adjacency graph</p> <p style="text-align: center;">top front ● ● top back</p> <p style="text-align: center;">top left ● ● top right</p> <p style="text-align: center;">base left ● ● base right</p> <p style="text-align: center;">base front ● ● base back</p>	<p>Complement</p> <p style="text-align: center;">top front ● ● top back</p> <p style="text-align: center;">top left ● ● top right</p> <p style="text-align: center;">base left ● ● base right</p> <p style="text-align: center;">base front ● ● base back</p>				
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<p>3 (ii)(B)</p>	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> </table>						

Spare templates for 3(i) and 3(ii) (A)

Adjacency graph

front ● ● back

left ● ● right

●
base

Complement

front ● ● back

left ● ● right

●
base

Adjacency graph

top front ● ● top back

top left ● ● top right

base left ● ● base right

base front ● ● base back

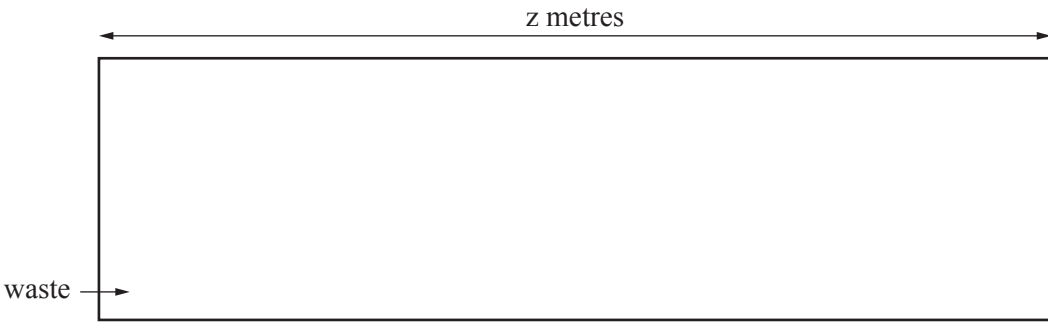
Complement

top front ● ● top back

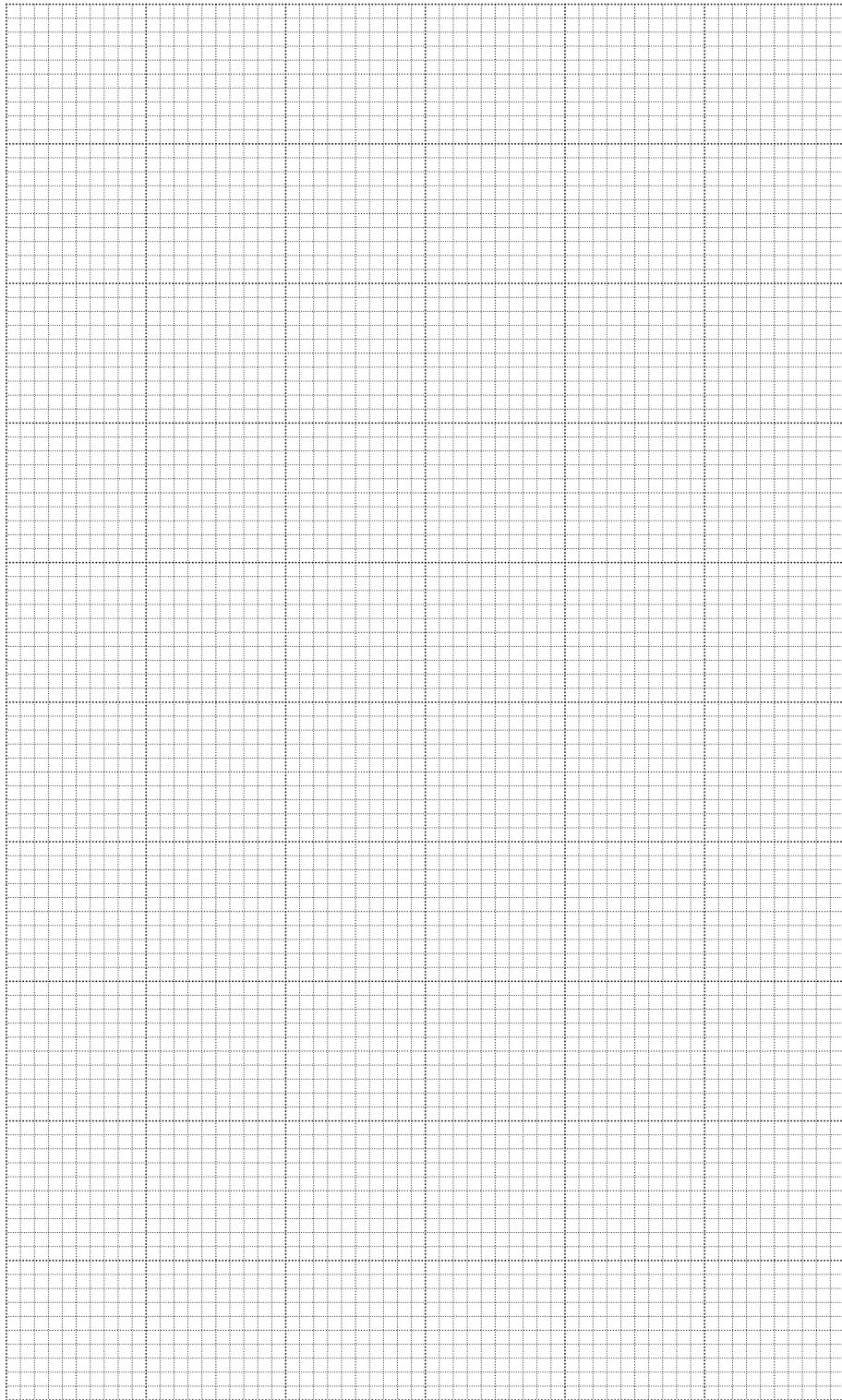
top left ● ● top right

base left ● ● base right

base front ● ● base back

<p>4 (i)</p>	 <p>A diagram showing a rectangle. Above the rectangle is a horizontal dimension line with arrows at both ends, labeled "z metres". To the left of the rectangle is a vertical dimension line with arrows at both ends, labeled "waste".</p>
<p>4 (ii)</p>	
<p>4 (iii)</p>	
<p>4 (iv)</p>	
<p>4 (v)</p>	
<p>4 (vi)</p>	<p>(answer space continued on next page)</p>

4 (vi) (continued) A spare copy of this graph can be found on page 12.



5 (i)

Activity	Duration (weeks)	Immediate predecessors
A	1	
B	1	
C	1	
D	8	
E	6	
F	6	
G	6	
H	1	
I	2	
J	4	
K	2	

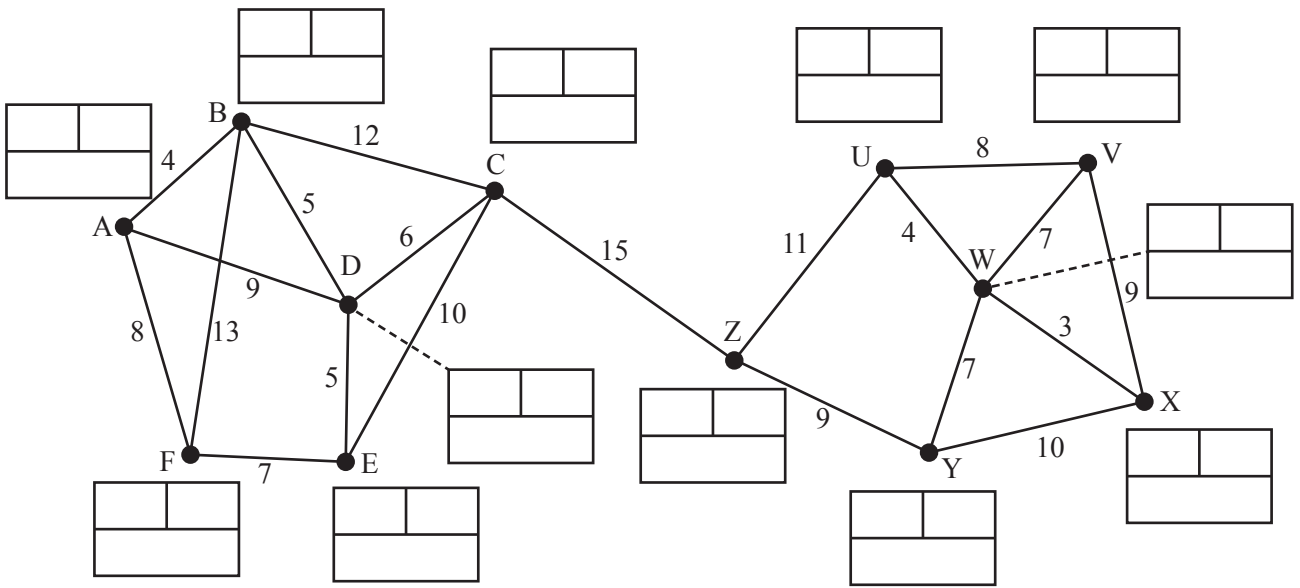
5 (ii) &
(iii)

5 (iv)	Week	1	2	3	4	5	6	7	8	9	10	11	12
	Room 1												
	Room 2												
	Room 3												

Spare for 5 (iv)													
Week	1	2	3	4	5	6	7	8	9	10	11	12	
Room 1													
Room 2													
Room 3													

Spare space for 5 (ii) & (iii)													
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6(a)(i)



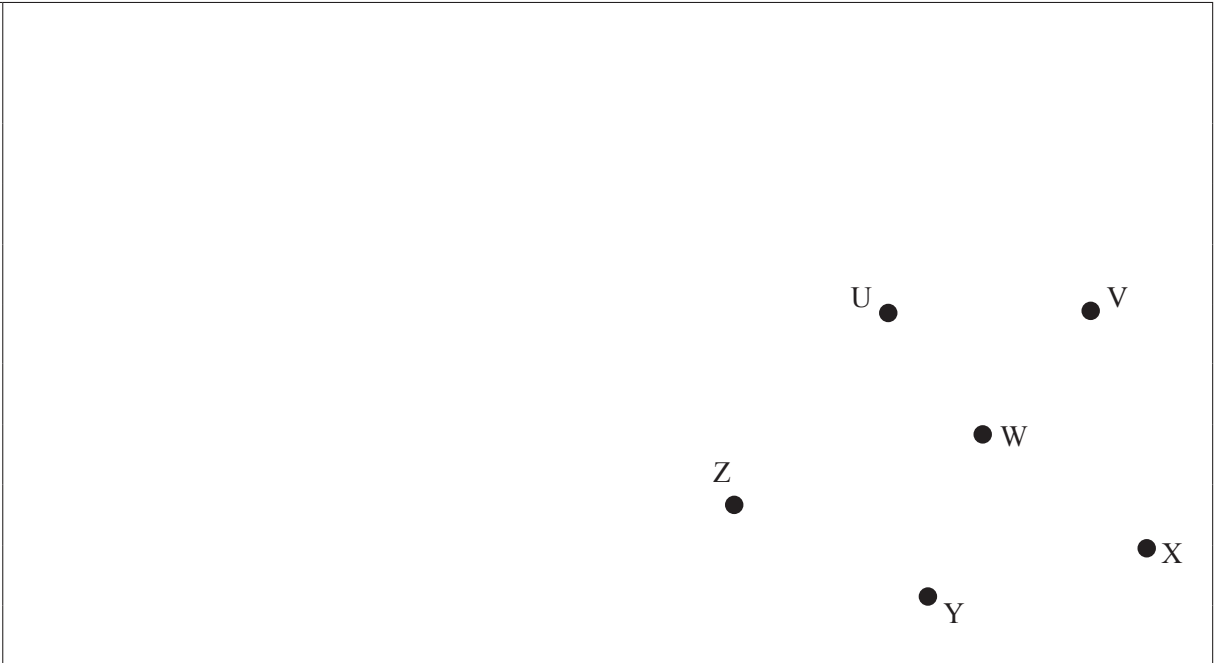
Route ...

Distance ...

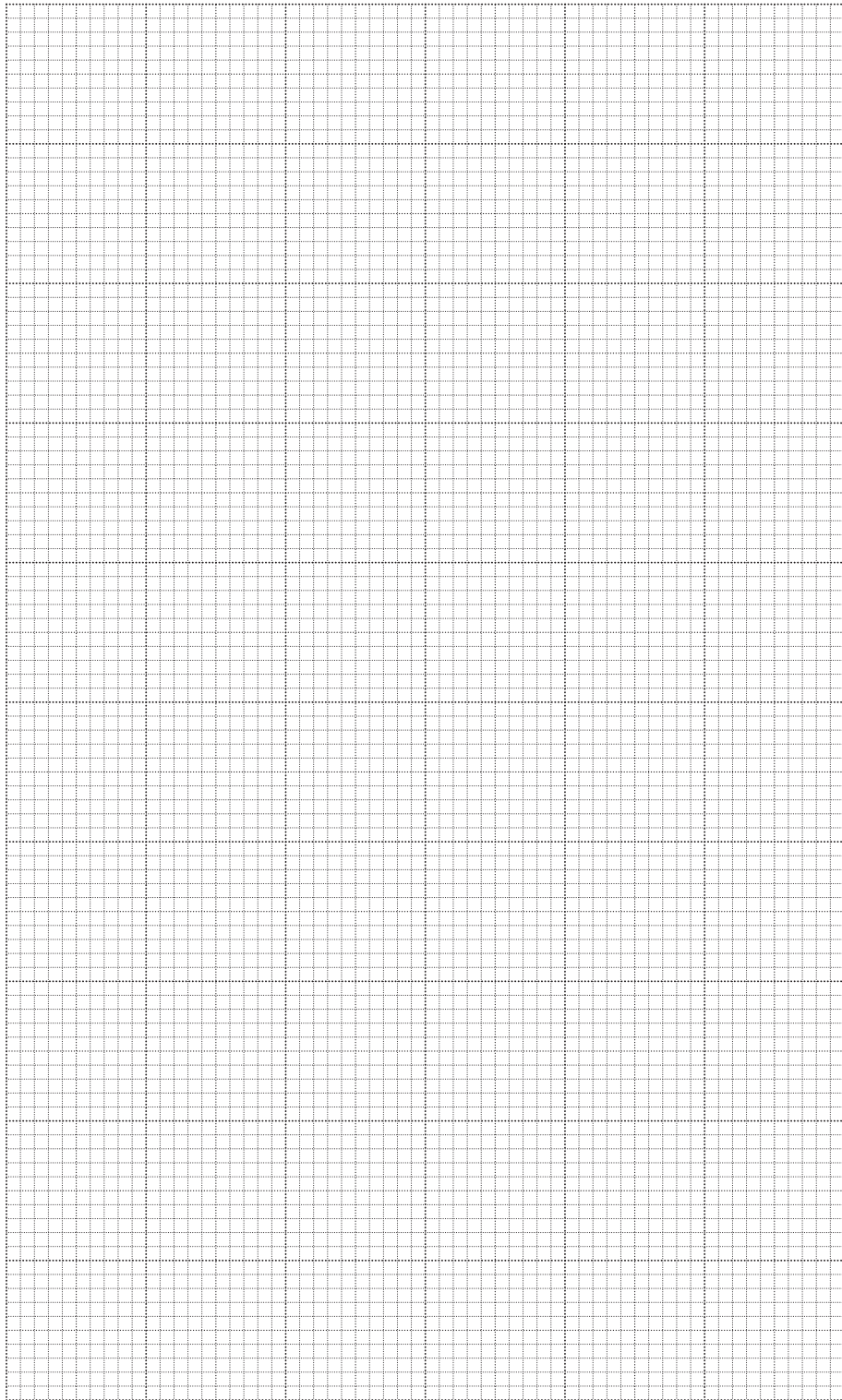
6(a)(ii)

6(b)(i)



6(b)(ii)	 <p>A scatter plot showing six data points labeled U, V, W, X, Y, and Z. The points are distributed as follows: U is in the upper-left quadrant, V is in the upper-right quadrant, W is in the middle-right area, X is in the lower-right quadrant, Y is in the lower-middle area, and Z is in the middle-left area.</p>				
6(b)(iii)	<table border="1"><tr><td> </td></tr><tr><td> </td></tr><tr><td> </td></tr><tr><td> </td></tr></table>				

4 (vi) Spare copy of graph for question 4(vi).



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