



Oxford Cambridge and RSA

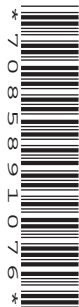
AS Level Further Mathematics B (MEI)

Y413/01 Modelling with Algorithms

Printed Answer Booklet

Thursday 17 May 2018 – Afternoon

Time allowed: 1 hour 15 minutes



You must have:

- Question Paper Y413/01 (inserted)
- Formulae Further Mathematics B (MEI)

You may use:

- a scientific or graphical calculator



First name										
Last name										
Centre number						Candidate number				

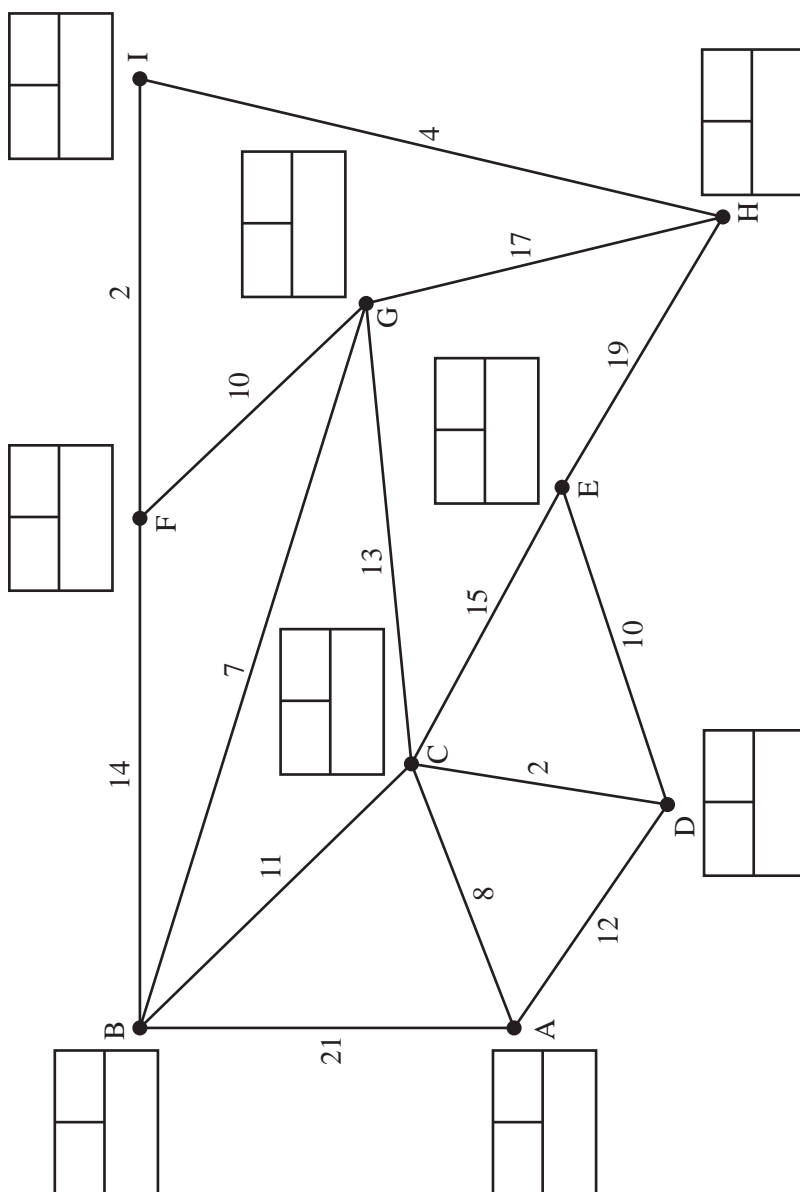
INSTRUCTIONS

- The Question Paper will be found inside the Printed Answer Booklet.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Complete the boxes provided on the Printed Answer Booklet with your name, centre number and candidate number.
- Answer **all** the questions.
- **Write your answer to each question in the space provided in the Printed Answer Booklet.** If additional space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the barcodes.
- 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.

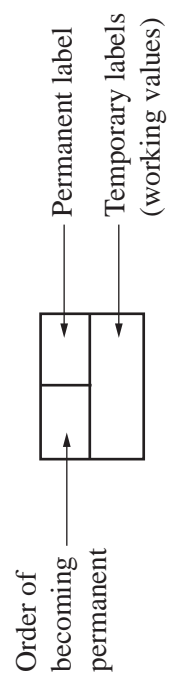
INFORMATION

- 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 used. You should communicate your method with correct reasoning.
- The Printed Answer Booklet consists of **12** pages. The Question Paper consists of **12** pages.

1(i)



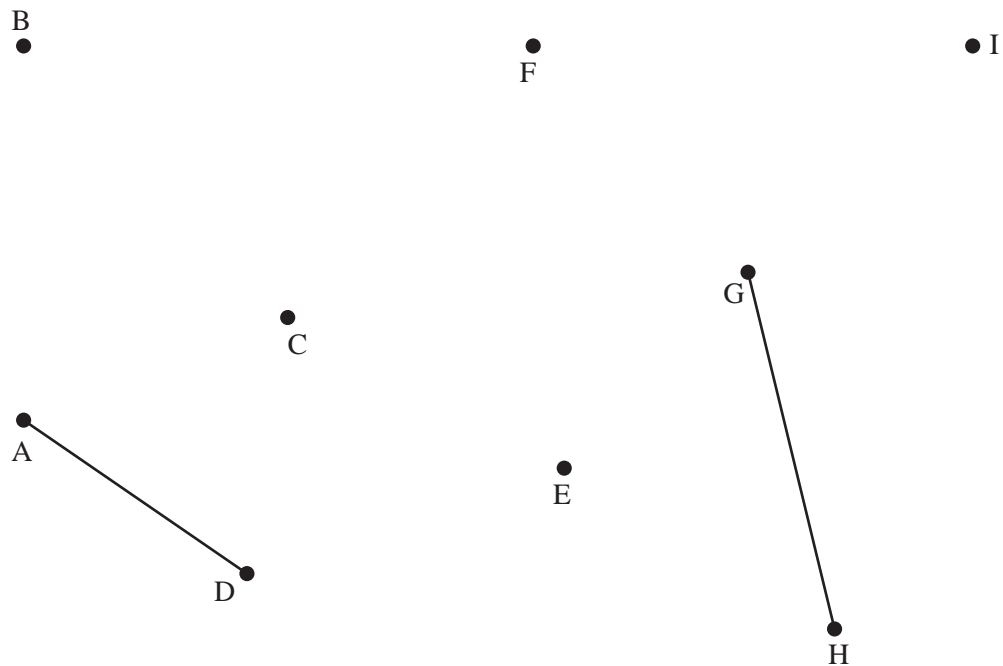
Key:



Do not cross out your temporary labels

1(ii)

$CD = 2$
 $FI = 2$
 $HI = 4$
 $BG = 7$
 $AC = 8$
 $FG = 10$
 $DE = 10$
 $BC = 11$
 $CG = 13$
 $BF = 14$
 $CE = 15$
 $EH = 19$
 $AB = 21$



Total length of arcs in spanning tree =

1(iii)

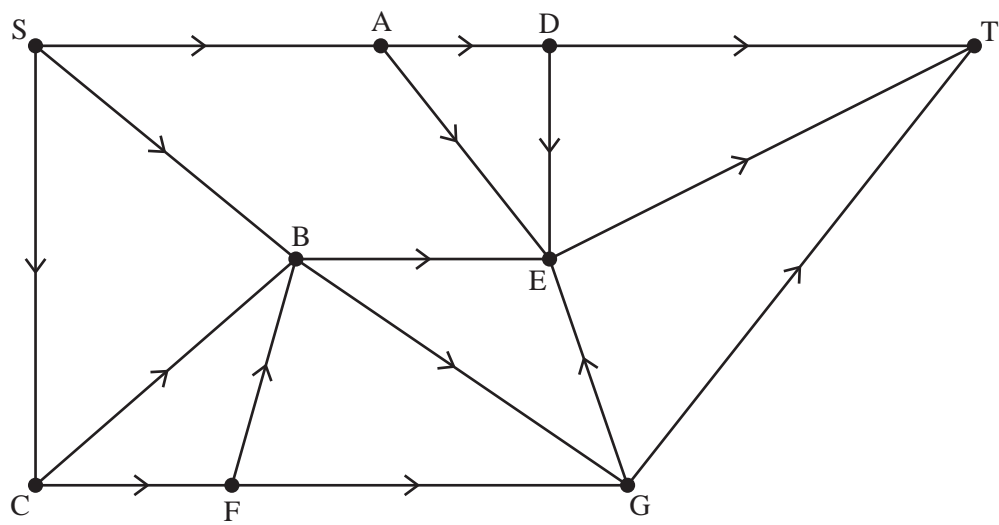
2(i)

2(ii)(A)

2(ii)(B)

2(iii)

2(iv)



3(i)	12	34	15	23	10	25
3(ii)						
3(iii)						

4(i)(A)	
4(i)(B)	
4(ii)(A)	
4(ii)(B)	
4(iii)(A)	
4(iii)(B)	
4(iv)(A)	
4(iv)(B)	

5(i)																							
5(ii)(A)																							
	<table border="1"> <thead> <tr> <th data-bbox="550 566 885 622">Activity</th> <th data-bbox="885 566 1157 622">Duration</th> </tr> </thead> <tbody> <tr><td data-bbox="550 622 885 676">A</td><td data-bbox="885 622 1157 676"></td></tr> <tr><td data-bbox="550 676 885 730">B</td><td data-bbox="885 676 1157 730"></td></tr> <tr><td data-bbox="550 730 885 784">C</td><td data-bbox="885 730 1157 784"></td></tr> <tr><td data-bbox="550 784 885 837">D</td><td data-bbox="885 784 1157 837"></td></tr> <tr><td data-bbox="550 837 885 891">E</td><td data-bbox="885 837 1157 891"></td></tr> <tr><td data-bbox="550 891 885 945">F</td><td data-bbox="885 891 1157 945"></td></tr> <tr><td data-bbox="550 945 885 999">G</td><td data-bbox="885 945 1157 999"></td></tr> <tr><td data-bbox="550 999 885 1052">H</td><td data-bbox="885 999 1157 1052"></td></tr> <tr><td data-bbox="550 1052 885 1106">I</td><td data-bbox="885 1052 1157 1106"></td></tr> <tr><td data-bbox="550 1106 885 1160">J</td><td data-bbox="885 1106 1157 1160"></td></tr> </tbody> </table>	Activity	Duration	A		B		C		D		E		F		G		H		I		J	
	Activity	Duration																					
	A																						
	B																						
	C																						
	D																						
	E																						
	F																						
	G																						
	H																						
I																							
J																							
5(iii)																							

6(i)

Q	P	x	y	z	s_1	s_2	s_3	a_1	RHS

6(ii)**6(iii)**

P	x	y	z	s_1	s_2	s_3	RHS

P	x	y	z	s_1	s_2	s_3	RHS

6(iv)	
6(v)	
6(vi)	

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

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