



Oxford Cambridge and RSA

Wednesday 18 June 2025 – Afternoon

A Level Further Mathematics A

Y544/01 Discrete Mathematics

Printed Answer Booklet

Time allowed: 1 hour 30 minutes



You must have:

- Question Paper Y544/01 (inside this document)
- the Formulae Booklet for A Level Further Mathematics A
- a scientific or graphical calculator



Please write clearly in black ink. **Do not write in the barcodes.**

Centre number

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Candidate number

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First name(s)

Last name

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided in the **Printed Answer Booklet**. If you need extra space use the lined pages at the end of the Printed Answer Booklet. The question numbers must be clearly shown.
- Answer **all** the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.
- Give non-exact numerical answers correct to **3** significant figures unless a different degree of accuracy is specified in the question.
- The acceleration due to gravity is denoted by gms^{-2} . When a numerical value is needed use $g = 9.8$ unless a different value is specified in the question.

INFORMATION

- The total mark for this paper is **75**.
- The marks for each question are shown in brackets [].
- This document has **16** pages.

ADVICE

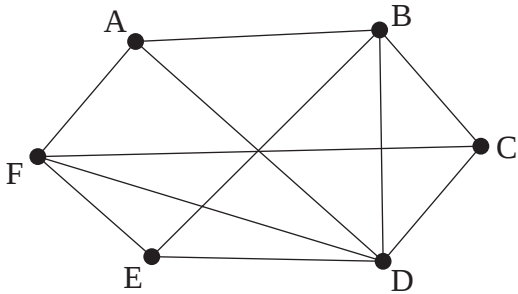
- Read each question carefully before you start your answer.

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1(b)	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">A</td> <td style="width: 10%;">B</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;">E</td> <td style="width: 10%;">F</td> <td style="width: 10%;">G</td> </tr> <tr> <td>A</td> <td>–</td> <td>120</td> <td>100</td> <td>230</td> <td>260</td> <td>150</td> <td>200</td> </tr> <tr> <td>B</td> <td>120</td> <td>–</td> <td>180</td> <td>210</td> <td>200</td> <td>250</td> <td>280</td> </tr> <tr> <td>C</td> <td>100</td> <td>180</td> <td>–</td> <td>235</td> <td>190</td> <td>170</td> <td>270</td> </tr> <tr> <td>D</td> <td>230</td> <td>210</td> <td>235</td> <td>–</td> <td>170</td> <td>185</td> <td>210</td> </tr> <tr> <td>E</td> <td>260</td> <td>200</td> <td>190</td> <td>170</td> <td>–</td> <td>210</td> <td>270</td> </tr> <tr> <td>F</td> <td>150</td> <td>250</td> <td>170</td> <td>185</td> <td>210</td> <td>–</td> <td>195</td> </tr> <tr> <td>G</td> <td>200</td> <td>280</td> <td>270</td> <td>210</td> <td>270</td> <td>195</td> <td>–</td> </tr> </table>									A	B	C	D	E	F	G	A	–	120	100	230	260	150	200	B	120	–	180	210	200	250	280	C	100	180	–	235	190	170	270	D	230	210	235	–	170	185	210	E	260	200	190	170	–	210	270	F	150	250	170	185	210	–	195	G	200	280	270	210	270	195	–
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3(a)	
3(b)	142 165 152 135 171 154 172 182
	List at end of 2nd Pass:
	List at end of 3rd Pass:
3(c)	
3(d)	
	Approximately: numbers

4(a)(i)	
	Minimum Project Completion Time: hours
4(a)(ii)	

4(b)

4(c)

Worker 1																
Worker 2																
Worker 3																
Worker 4																
Worker 5																

Spare diagram (if needed)

Worker 1																
Worker 2																
Worker 3																
Worker 4																
Worker 5																

Minimum Number of Workers:

4(d)

Range of Values of t :

5(a)																	
5(b)	<table><tr><td></td><td>X</td><td>Y</td><td>Z</td></tr><tr><td>P</td><td>1</td><td>2</td><td>-1</td></tr><tr><td>Q</td><td>3</td><td>0</td><td>2</td></tr><tr><td>R</td><td>-1</td><td>4</td><td>-2</td></tr></table>		X	Y	Z	P	1	2	-1	Q	3	0	2	R	-1	4	-2
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	Q	3	0	2													
	R	-1	4	-2													
5(c)																	
5(d)																	
	Cell: New Pay-Off Value:																
5(e)																	

5(f)(i)	
	Optimal Mixed Strategy for Player B:
5(f)(ii)	
	Value of m:

6(a)

6(b)

<i>P</i>	<i>x</i>	<i>y</i>	<i>z</i>	<i>r</i>	<i>s</i>	<i>t</i>	RHS

Spare grid (if needed)

<i>P</i>	<i>x</i>	<i>y</i>	<i>z</i>	<i>r</i>	<i>s</i>	<i>t</i>	RHS

6(c)(i)								

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	Spare grid (if needed)																																															
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6(d)	
6(e)	
	$k =$

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7(a)	
7(b)	

EXTRA ANSWER SPACE

If you need extra space use these lined pages. You must write the question numbers clearly in the margin.

