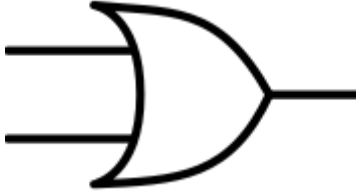


Q	Answer	Mark	Guidance																																																						
1	<table border="1" data-bbox="163 225 439 563"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>Q</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr> </tbody> </table> <p>1 mark per correct column</p>	A	B	C	D	E	Q	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0	1	1	1	1	0	1	0	0	0	0	1	1	0	1	0	0	1	1	1	0	0	0	1	1	1	1	1	1	0	3	
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2	<p>$Q = \text{NOT} (C \text{ AND } (A \text{ AND } B))$</p> <p>1 mark for</p> <ul style="list-style-type: none"> • C AND (A AND B) • Using the NOT before the C AND (A AND B) 	2																																																							
3	<p>1 mark for</p> <ul style="list-style-type: none"> • Correctly identify the truth table as an OR logic gate • For drawing an OR gate 	2	 <p>This Photo by Unknown Author is licensed under CC BY-SA</p>																																																						

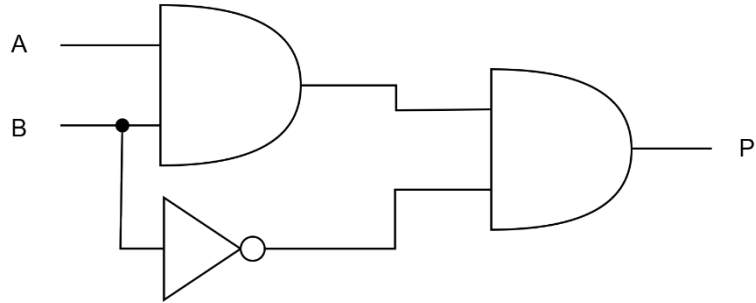
4	<table border="1" data-bbox="163 180 539 518"> <thead> <tr> <th></th> <th></th> <th></th> <th>D</th> <th>E</th> <th>Q</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table> <p data-bbox="163 595 539 624">1 mark for each correct column</p>				D	E	Q				0	1	1				0	0	0				0	1	1				1	0	1				0	1	1				0	0	0				0	1	1				1	0	1	3	
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5	<p data-bbox="163 671 488 700">Either answer is acceptable</p> <ul data-bbox="210 708 539 775" style="list-style-type: none"> • $Q = (A \& B) \text{ OR NOT } C$ • $Q = \text{NOT } C \text{ OR } (A \text{ AND } B)$ <p data-bbox="163 818 293 847">1 mark for</p> <ul data-bbox="210 855 461 922" style="list-style-type: none"> • NOT C • Correct using OR 	2																																																							



6	<table border="1" data-bbox="163 180 528 815"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>Q</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td></tr> </tbody> </table> <p data-bbox="163 858 528 887">1 mark for each correct column</p>	A	B	C	D	E	F	G	Q	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	1	0	1	0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	0	1	1	0	1	1	0	0	0	1	1	0	1	1	1	0	1	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	0	1	1	1	0	1	0	0	0	1	1	1	0	1	1	0	1	0	0	1	1	0	0	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	1	4	
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7	<p data-bbox="163 935 488 963">Either answer is acceptable</p> <ul data-bbox="215 970 651 1038" style="list-style-type: none"> • $Q = (A \ \& \ B) \ \text{OR} \ \text{NOT} \ (C \ \text{AND} \ D)$ • $Q = \text{NOT} \ (C \ \text{AND} \ D) \ \text{OR} \ (A \ \text{AND} \ B)$ <p data-bbox="163 1082 293 1110">1 mark for</p> <ul data-bbox="215 1117 461 1222" style="list-style-type: none"> • NOT C AND D • A AND B • Correct using OR 	3																																																																																																																																									



8



2

1 mark for

- An AND Gate which takes as an input the result of A AND B
- ... AND the result of NOT B

9

A	B	A AND B	NOT B	P
0	0	0	1	0
0	1	0	0	0
1	0	0	1	0
1	1	1	0	0

3

1 mark for each correct column

