

Question			Marks
1	1	<p>All marks AO2 (apply)</p> <p>E I H C Y B Q;;</p> <p>If not fully correct award a maximum of 1 mark for any of the following:</p> <ul style="list-style-type: none">• Having E followed by I then H• Having Y followed by B then Q• Having C as the 4th output	2

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1	2	All marks AO2 (apply)						7																																																																																																																														
		<table><tr><th colspan="2"></th><th colspan="4">Stack</th><th></th></tr><tr><th>Current</th><th>Pos</th><th>[0]</th><th>[1]</th><th>[2]</th><th>[3]</th><th>OUTPUT</th></tr><tr><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>-1</td><td></td><td></td><td></td><td></td><td>C</td></tr><tr><td></td><td>0</td><td>4</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>1</td><td></td><td>1</td><td></td><td></td><td></td></tr><tr><td>1</td><td>0</td><td></td><td></td><td></td><td></td><td>I</td></tr><tr><td></td><td>1</td><td></td><td>3</td><td></td><td></td><td></td></tr><tr><td></td><td>2</td><td></td><td></td><td>2</td><td></td><td></td></tr><tr><td>2</td><td>1</td><td></td><td></td><td></td><td></td><td>E</td></tr><tr><td>3</td><td>0</td><td></td><td></td><td></td><td></td><td>H</td></tr><tr><td>4</td><td>-1</td><td></td><td></td><td></td><td></td><td>B</td></tr><tr><td></td><td>0</td><td>6</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>1</td><td></td><td>5</td><td></td><td></td><td></td></tr><tr><td>5</td><td>0</td><td></td><td></td><td></td><td></td><td>Y</td></tr><tr><td>6</td><td>-1</td><td></td><td></td><td></td><td></td><td>Q</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								Stack					Current	Pos	[0]	[1]	[2]	[3]	OUTPUT	0	0	0					0	-1					C		0	4						1		1				1	0					I		1		3					2			2			2	1					E	3	0					H	4	-1					B		0	6						1		5				5	0					Y	6	-1					Q															
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		<p>Mark as follows:</p> <p>1. Stack[0] set to 0, Pos set to 0 and Current set to 0</p> <p>2. Current set to 0, Pos set to -1 and output of C</p> <p>3. Stack[0] set to 4 and Pos set to 0</p> <p>4. Stack[1] set to 1, then 3 and then 5 with no other values after being set to 5</p> <p>5. Stack[2] set to 2 with no other values after this, Stack[0] having a 3rd value of 6 with no other values after this and Stack[3] column not used;</p> <p>6. Pos column correct from 4th value (1) onwards and Current column set to the value 1, then 2, 3, 4, 5, 6 with no further values after being set to 6</p> <p>7. Correct order in output column for 2nd value onwards (I, E, H, B, Y, Q)</p> <p>Max 6 if any errors</p>																																																																																																																																				

Question			Marks																																																																																																																																					
2	1	<p>All marks AO1 (understanding)</p> <p>Connected; Undirected;</p> <p>A. explanations of connected/undirected</p>	2																																																																																																																																					
2	2	<p>All marks AO2 (apply)</p> <table><tr><th colspan="2"></th><th colspan="3">Temp</th><th></th><th></th></tr><tr><th>Done</th><th>Pos</th><th>[0]</th><th>[1]</th><th>[2]</th><th>Current</th><th>OUTPUT</th></tr><tr><td>False</td><td>-1</td><td></td><td></td><td></td><td>0</td><td></td></tr><tr><td></td><td>0</td><td>0</td><td></td><td></td><td>1</td><td></td></tr><tr><td></td><td>1</td><td></td><td>1</td><td></td><td>2</td><td></td></tr><tr><td></td><td>2</td><td></td><td></td><td>2</td><td>-1</td><td>Y</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td></tr><tr><td></td><td>1</td><td></td><td></td><td></td><td></td><td>K</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td></tr><tr><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>1</td><td></td><td>3</td><td></td><td>-1</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td></tr><tr><td></td><td>0</td><td></td><td></td><td></td><td></td><td>U</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td><td></td></tr><tr><td></td><td>-1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>0</td><td>4</td><td></td><td></td><td>-1</td><td>M</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td></tr><tr><td></td><td>-1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>True</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>Mark as follows:</p> <p>1. Done set to False, Pos set to -1 and Current set to 0 2. Pos set to 0, Temp[0] set to 0 and Current set to 1 3. Pos set to 1, Temp[1] set to 1 and Current set to 2 4. First output is Y 5. Temp[2] set to 2 with no other values after this, Temp[1] set to 3 with no other values after this and Temp[0] set to 4 with no other values after this; 6. Done column correct 7. Correct order for K, H, U and M in output column with no incorrect outputs</p> <p>I. unnecessary repeated values in a column</p> <p>Max 6 if any errors</p>			Temp					Done	Pos	[0]	[1]	[2]	Current	OUTPUT	False	-1				0			0	0			1			1		1		2			2			2	-1	Y						-1			1					K						3			0							1		3		-1	H						-1			0					U						4			-1							0	4			-1	M						-1			-1						True							7
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2	3	<p>All marks AO2 (analyse)</p> <p>There is no child node to the right of any node // each child node is to the left of its parent node;;</p> <p>Note for examiners: if answer is not correct then max one mark for any of the following points:</p> <ul style="list-style-type: none"> • each node has, at most, one child node R. each node has one child node • there are no nodes with two child nodes • tree has a depth of five 	2
2	4	<p>Mark is for AO2 (analyse)</p> <p>Stack // LIFO (data structure);</p>	1
2	5	<p>Mark is for AO2 (analyse)</p> <p>Change the line <code>Current ← Dir1[Current]</code> to <code>Current ← Dir2[Current]</code> Change the line <code>Current ← Dir2[Temp[Pos]]</code> to <code>Current ← Dir1[Temp[Pos]]</code>; // Change <code>Dir1</code> to <code>Dir2</code> and change <code>Dir2</code> to <code>Dir1</code>;</p>	1