

Q	Solution	Marks	Total	Comments
2	<p>Route <i>ACEGI</i></p> <p><math>I=10</math></p>	M1	7	SCA
		A1		for <i>E</i>
		A1F		for <i>G</i>
		A1F		for <i>H</i>
		A1F		for <i>I</i>
		B1		
		B1		
				<b>Alternative Stage/State</b>
				Stage    State    Action    Value Total
				1 <i>G</i> (1, 1)    1    7    7
				<i>H</i> (1, 2)    1    11    11 A1
				2 <i>D</i> (2, 1)    1    -8+7    -1
				<i>E</i> (2, 2)    1    15
				2    14
				3    4    4 A1F
				<i>F</i> (2, 3)    1    16    16
				3 <i>B</i> (3, 1)    1    7
				2    13
				3    6    6 A1F
				<i>C</i> (3, 2)    1    0    0
				2    12
				3    20
				4 <i>A</i> (4, 1)    1    11
				2    12
				3    10    10 A1F
				Route <i>ACEGI</i> B1
				10                                    B1
		<b>Total</b>	<b>7</b>	

Q	Solution	Marks	Total	Comments
6 (a)				
	<p>Min = 37</p> <p>Alternative: working back  <math>K: 0</math>  <math>I: 11</math>  <math>J: 14</math>  <math>H: 20</math>  <math>F: 18; 11 + 4x - 3y</math>  <math>G: 23; x + y + 14</math></p> <p><math>E: 26; 19 + 4x - 3y; x + y + 19</math>  <math>C: 32; 25 + 4x - 3y; x + y + 25</math>  <math>D: 33; 26 + 4x - 3y; x + y + 26</math>  <math>A: 37; x + y + 30; 4x - 3y + 30</math></p>	<p>M1  A1  A1  A1  A1  B1  (M1)  (A1)  (A1)  (A1)  (A1)  (B1)</p>	<p>6</p>	<p>SCA  For <math>C</math> or <math>D</math> (or <math>F</math> or <math>G</math>)  <math>F</math> or <math>E</math>  2 values at <math>I</math> (or <math>F</math>)  2 values at <math>J</math> (or <math>G</math>)</p> <p>SCA</p> <p>2 values at <math>F</math>  2 values at <math>G</math>  <math>F</math> or <math>G</math> correct  26 at <math>E</math></p> <p>Min = 37</p>
(b)	$4x - 3y + 30 = 37$ $x + y + 30 = 37$ $\Rightarrow x = 4$ $y = 3$	<p>M1  A1F  A1</p>	<p>3</p>	<p>Attempt</p> <p>both correct <math>4x - 3y = z</math>  <math>x + y = z</math></p> <p>or delete <math>FI</math> and <math>GJ</math> then solve</p>
	<b>Total</b>		<b>9</b>	

Q	Solution	Marks	Total	Comments
3 (a)	<p>Network diagram with nodes: (330), (630, 740), (360), (660, 790), (930, 900, 920), (390), (630, 630). Edges are labeled F, R, S.</p>	G1 M1 M1 M1 A1x3		Network diagram SCA 3 pairs after W1 3 after W2 at stage 2
	<p>Route <math>RSF = £900</math></p> <p>(b) Min = 910 <math>FSR</math> Extra = £10</p> <p><b>Alternative</b></p> <p>(a)</p> <p>Alternative network diagram with nodes: (600, 580), (300), (300), (330), (330), (380), (380), (360), (250), (250), (910, 900, 950), (680, 540), (270), (270), (390), (400), (400), (270), (650, 560), (280), (270).</p>	B1x2  B1 B1	9  2	Or using Stage/State method
	<p>Route <math>RSF = 900</math></p> <p>(b) Min 910 (<math>FSR</math>) Extra = £10</p>	(G1) (M1) (M1) (M1) (A1x3)  (B1x2)  (B1) (B1)		<u>WORKING BACK</u> Network SCA 3 pairs at W1/2 3 values at start at stage 2
	<b>Total</b>		<b>11</b>	