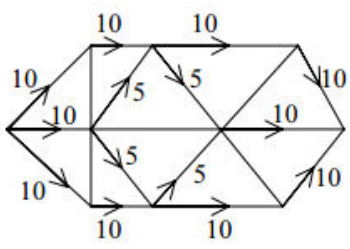
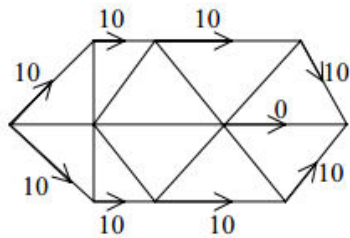
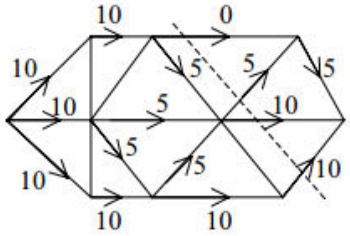
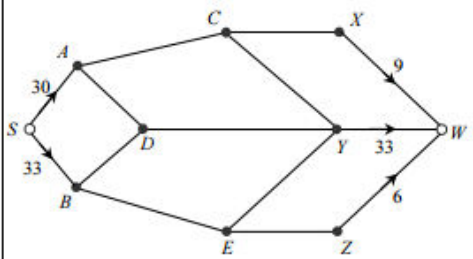
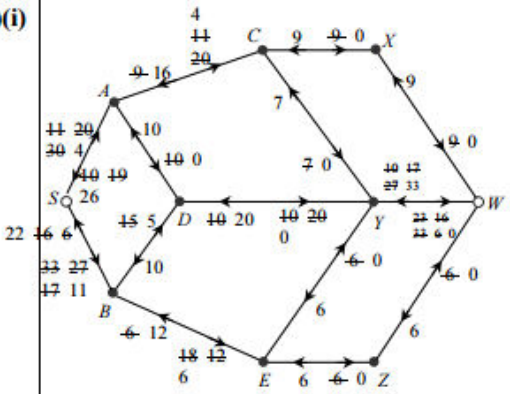
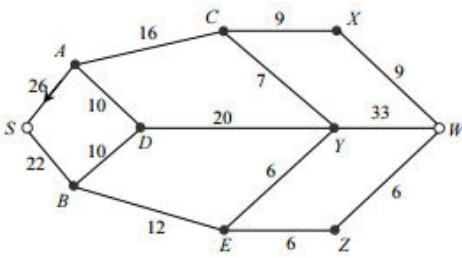


Challenge 1

Q	Solution	Marks	Total	Comments
3(a)	$C_1 = 42$ $C_2 = 10 + 8 + 14 + 6 + 10$ $= 48$	B1 M1 A1	3	
(b)		M1 M1 M1 A1 A1F A1 B1	7	SCA 1 flow 2nd flow 1st 2nd all correct } OE
	Max flow = 28			
	Total		10	

Q	Solution	Marks	Total	Comments
4 (a)	$C_1 = 40$ $C_2 = 35$	B1 B1	2	
(b)		M1 A1	2	
(c)		M1		
	Max flow = 20	A1	2	
(d)(i)		M1		
	Max flow = 25	A1	2	
(ii)	Min cut = 25 Min cut = Max flow	M1 A1	2	Attempted cut Correct cut GH, GJ, IJ or $(C_2 - EH)$
Total			10	

Q	Solution	Marks	Total	Comments	
4	(a)		M1		for <i>S</i> and <i>W</i>
			A1	2	for five arcs correct (\geq)
	(b)	<i>SADYW</i> = 10 <i>SBEZW</i> = 6	B1 B1	2	
	(c)(i)		M1 M1 A1 A1 A1		for starting with <i>SADYW</i> , <i>SBEZW</i> SCA for <i>AC</i> for <i>SA</i> for <i>SB</i>
			B1	6	OE
	(ii)	Maximum flow = 48	M1		
		Minimum cut <i>CX</i> , <i>YW</i> , <i>EZ</i> (9) (33) (6) =48	A1	2	
		Total		12	