

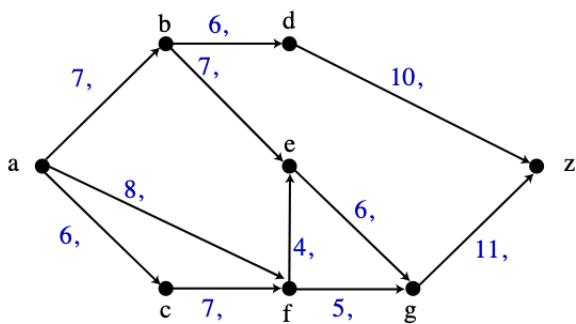
Discrete Methods: 3.3 Network Flows

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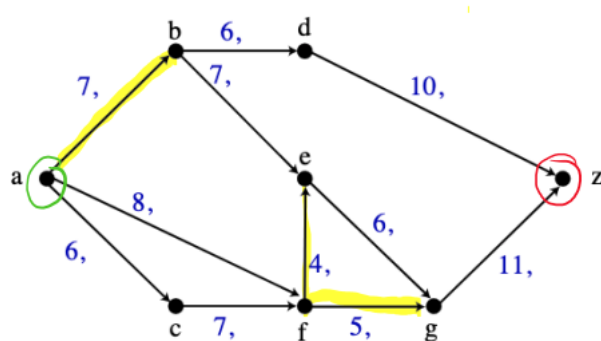
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Problem 3.3.25.

Find all $a - z$ cut sets in Figure 3.3.24. Of these sets of edges which has the least capacity?



(a) Figure 3.3.24



(b) Figure 3.3.24.1

Figure 1: Figure 3.3.24 and Figure 3.3.24 with least capacity $a - z$ cut set

Least Capacity $a - z$ Cut Set

$$(P, \bar{P}) = (a, b), (f, e), (f, g)$$

$$k(P, \bar{P}) = 7 + 4 + 5 = 16$$

$a - z$ Cut Sets in Figure 3.3.24.

P	\bar{P}	(P, \bar{P})	$k(P, \bar{P})$
a	b, c, d, e, f, g, z	(a, b), (a, f), (a, c)	21
a, b	c, d, e, f, g, z	(a, c), (a, f), (b, e), (b, d)	27
a, c	b, d, e, f, g, z	(a, b), (a, f), (c, f)	22
a, d	b, c, e, f, g, z	(a, b), (a, c), (a, f), (d, z)	31
a, e	b, c, d, f, g, z	(a, b), (a, c), (a, f), (e, g)	27
a, f	b, c, d, e, g, z	(a, b), (a, c), (f, g)	18
a, g	b, c, d, e, f, z	(a, b), (a, c), (a, f), (g, z)	32
a, b, c	d, e, f, g, z	(a, f), (b, d), (b, e), (c, f)	28
a, b, d	c, e, f, g, z	(a, c), (a, f), (d, z)	24
a, b, e	c, d, f, g, z	(a, f), (a, c), (b, d), (e, g)	26
a, b, f	c, d, e, g, z	(a, f), (a, c), (f, e)	18
a, b, g	c, d, e, f, z	(a, f), (a, c), (g, z)	25
a, c, d	b, e, f, g, z	(a, b), (a, f), (c, f), (d, z)	32
a, c, e	b, d, f, g, z	(a, b), (a, f), (c, f), (e, g)	28
a, c, f	b, d, e, g, z	(a, b), (f, e), (f, g)	16
a, c, g	b, d, e, f, z	(a, b), (a, f), (c, f), (g, z)	33
a, d, e	b, c, f, g, z	(a, b), (a, f), (a, c), (d, z), (e, g)	37
a, d, f	b, c, e, g, z	(a, b), (a, c), (f, g), (f, e), (d, z)	32
a, d, g	b, c, e, f, z	(a, b), (a, c), (a, f), (d, z), (g, z)	42
a, e, f	b, c, d, g, z	(a, b), (a, c), (e, g), (f, g)	24
a, e, g	b, c, d, f, z	(a, b), (a, c), (a, f), (g, z)	32
a, f, g	b, c, d, e, z	(a, b), (a, c), (f, e), (g, z)	28
a, b, c, d	e, f, g, z	(a, f), (b, e), (c, f), (d, z)	32
a, b, c, e	d, f, g, z	(a, f), (b, d), (c, f), (e, g)	27
a, b, c, f	d, e, g, z	(b, d), (b, e), (f, g), (f, e)	22
a, b, c, g	d, e, f, z	(c, f), (b, d), (a, f), (b, e), (g, z)	37
a, b, d, e	c, f, g, z	(a, c), (a, f), (e, g), (d, z)	30
a, b, d, f	c, e, g, z	(a, c), (b, e), (d, z), (f, e), (f, g)	32
a, b, d, g	c, e, f, z	(a, c), (a, f), (b, e), (d, z)	31
a, c, d, e	b, f, g, z	(a, b), (a, f), (d, z), (c, f), (e, g)	37
a, c, d, f	b, e, g, z	(a, b), (d, z), (f, e), (f, g)	28
a, c, d, g	b, e, f, z	(a, b), (a, f), (c, f), (d, z), (g, z)	43
a, e, f, g	z, b, c, d	(g, z), (a, b), (a, c)	24
a, d, f, g	z, b, c, e	(a, b), (a, c), (f, e), (g, z), (d, z)	38
a, d, e, g	z, b, c, f	(a, b), (a, c), (a, f), (d, z), (g, z)	42
a, d, e, f	z, b, c, g	(a, b), (a, c), (d, z), (e, g), (f, g)	34
a, c, f, g	z, b, d, e	(a, b), (f, e), (g, z)	22
a, c, e, g	z, b, d, f	(a, b), (a, f), (c, f), (g, z)	33
a, c, e, f	z, b, d, g	(a, b), (e, g), (f, g)	18
a, b, f, g	z, c, d, e	(a, c), (b, d), (f, e), (g, z), (b, e)	34
a, b, e, g	z, c, d, f	(a, c), (a, f), (b, d), (g, z)	31
a, b, e, f	z, c, d, g	(a, c), (b, d), (e, g), (f, g)	23

$a - z$ Cut Sets in Figure 3.3.24.			
P	\bar{P}	(P, \bar{P})	$k(P, \bar{P})$
a, b, c, d, e	f, g, z	(a, f), (c, f), (e, g), (d, z)	31
a, b, c, d, f	e, g, z	(f, g), (d, z), (b, e), (f, e)	26
a, b, c, d, g	e, f, z	(a, f), (c, f), (b, e), (d, z), (g, z)	43
a, c, d, e, f	b, g, z	(a, b), (f, g), (e, g), (d, z)	28
a, c, d, e, g	b, f, z	(a, b), (a, f), (c, f), (g, z)	33
a, d, e, f, g	b, c, z	(a, b), (a, c), (d, z), (g, z)	34
a, b, d, e, f	c, g, z	(a, c), (e, g), (f, g), (d, z)	27
a, b, d, e, g	c, f, z	(a, c), (c, f), (a, f), (d, z), (g, z)	42
a, b, e, f, g	c, d, z	(a, c), (b, d), (g, z)	23
a, b, d, f, g	c, e, z	(a, c), (b, e), (d, z), (g, z), (f, e)	38
a, c, e, f, g	b, d, z	(a, b), (g, z)	18
a, c, d, f, g	b, e, z	(a, b), (f, e), (d, z), (g, z)	32
a, b, c, f, g	d, e, z	(b, d), (b, e), (f, e), (g, z)	28
a, b, c, e, g	d, f, z	(a, f), (b, d), (d, z), (g, z)	35
a, b, c, e, f	d, g, z	(b, d), (f, g), (e, g)	17
a, b, c, d, e, f	g, z	(f, g), (e, g), (d, z)	21
a, b, c, d, e, g	f, z	(a, f), (c, f), (d, z), (g, z)	36
a, c, d, e, f, g	b, z	(a, b), (d, z), (g, z)	28
a, b, c, d, f, g	e, z	(b, e), (d, z), (g, z)	28
a, b, d, e, f, g	c, z	(a, c), (d, z), (g, z)	27
a, b, c, e, f, g	d, z	(b, d), (d, z), (g, z)	27
a, b, c, d, e, f, g	z	(d, z), (g, z)	21