Algorithms HW5

1. ~~A, F, C, B, D~~ A, F, C, B, D

2. A, 0
F, 1
C, 1
B, 1
D, 2

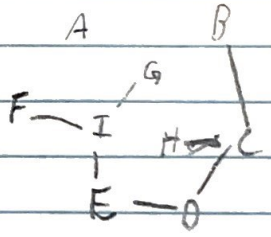
3.

	In-Degree	Outdegree
A	2	3
B	1	2
C	5	0
D	2	2
E	1	2
F	1	2
G	1	2

4.

Edge	Weight
GI	3
IE	5
ED	3
DC	5
CH	3
IF	7
CB	9
BA	5

TOTAL WEIGT: 40



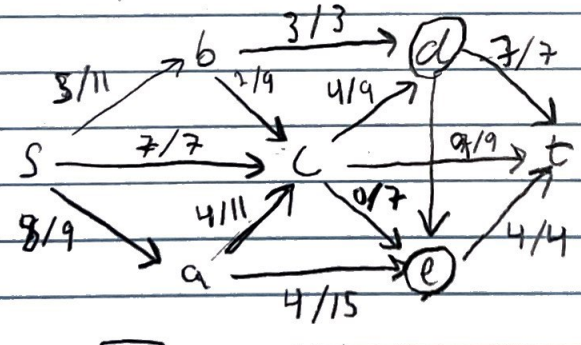
Visited
G I E
~~H~~ D C ~~H~~
~~E~~ F

5. Starting from F

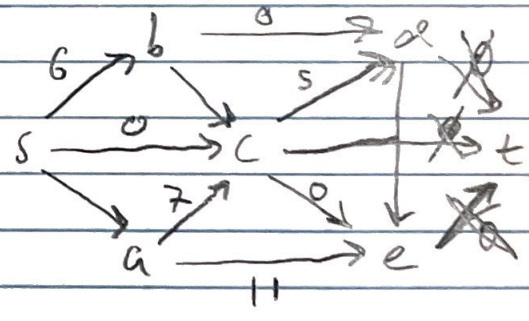
V	F	C	E	B	D	A
F	0_F	7_F	15_F	6_F	∞_F	∞_F
B	0_F	7_F	15_F	6_F	∞_F	5_B
A	0_F	7_F	15_F	6_F	9_A	5_B
✓ D	0_F	7_F	15_F	6_F	9_A	5_B

Paths:

		Total Flow
✓	s → b → d → t	7
6. ✗	s → b → d → e → t	3
✗	s → b → c → e → t	4
	s → b → c → t	2
✗	s → a → c → e → t	+4
	s → a → c → d → t	20
✓	s → a → e → t	
✗	s → c → e → t	
✗	s → c → d → e → t	
✗	s → c → d → t	
✓ ★★	s → c → t ★★ shortest path!	



Residual Graph



(a) Max Flow: 20

CUTS: dt
ct
et

(b) Capacity after min. Cut: 29

(c) S: s, b, a, c, d, e; t: t

(d) Edges with non-zero flow:

sb	5
sc	7
sa	8
bd	3
bc	2
cd	4
ct	9
ac	4
ae	4
et	4
dt	7