

# SHEET 1

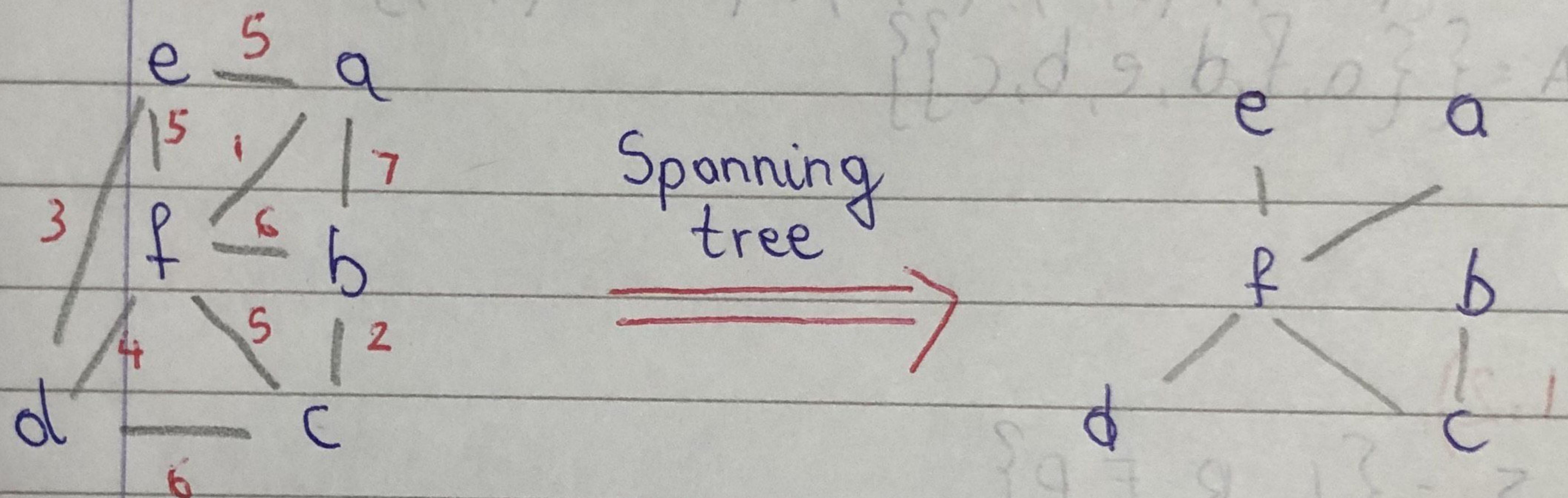
1.1)  $G = (V, E)$

$$V = \{a, b, c, d, e, f\}$$

$$E = \{(a, b); (a, e); (a, f); (b, c); (b, f); (c, d); (c, f); (d, e); (d, f); (e, f)\}$$

$$E: (a, b) \quad (a, e) \quad (a, f) \quad (b, c) \quad (b, f) \quad (c, d) \quad (c, f) \quad (d, e) \quad (d, f) \quad (e, f)$$

$$C: 7 \quad 5 \quad 1 \quad 2 \quad 6 \quad 6 \quad 5 \quad 3 \quad 4 \quad 5$$



$$E' = \{\}$$

$$A = \{\{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{f\}\}$$

start,  $c=0$

$$E' = \{(a, f)\}$$

$$A = \{\{a, f\}, \{b\}, \{c\}, \{d\}, \{e\}\}$$

step 1,  $c=1$

$$E' = \{(a, f); (b, c)\}$$

step 2, C=3

$$A = \{\{a, f\}, \{b, c\}, \{d, e\}\}$$

$$E' = \{(a, f); (b, c); (d, e)\}$$

step 3, C=6

$$A = \{\{a, f\}, \{b, c\}, \{d, e\}\}$$

$$E' = \{(a, f); (b, c); (d, e); (d, f)\}$$

step 4, C=10

$$A = \{\{a, f, d, e\}, \{b, c\}\}$$

$$E' = \{(a, f); (b, c); (d, e); (d, f); (c, f)\}$$

step 5, C=15

$$A = \{\{a, f, d, e, b, c\}\}$$

1.2)

$$\Sigma = \{L, R, F, P\}$$

$$t = FFLFLFRFRFFLFRF$$

$$p = FFLFR$$

a) naive string search

FFLFLF RFRFFLFRF

stomaglio

FFLFR

enzymogen

FFlfr

Fflrf

10 alignments

FFlfrr

22 comparisons

FfLfrr

FFlfrr

FfLfrr

- FFlfrr

- FFlfrr

- FFlfrr

- FFlfrr

- FFlfrr

- FFlfrr

b) Boyer - Moore Bad character rule

FFLFLF RFRFFLFRF skips

FFLFR 1

FFLFR 0

FFLFR 0

FFLFR 2

FFLFR 1

FFLFR

6 alignments

16 comparisons

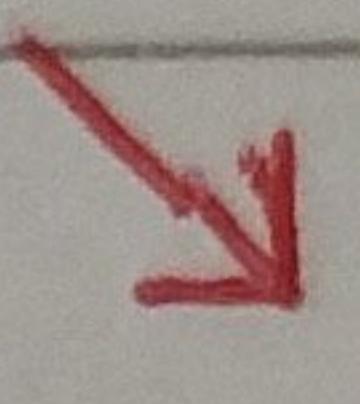
### c) Lookup table

	0	1	2	3	4
	F	F	L	F	R
L	0	1	-	0	1
R	0	1	2	3	-
F	-	-	0	-	0
P.	0	1	2	3	4

1.3)

a) When we have in an expression operators that are neither left or right associative, the result will be an error, so it will show no output. The reason is that this expression is ambiguous and the computer does not know in which order to carry out the expression.

For example :

$1 == 1 == 1$        Error

1.3)

6)

$$2^{\wedge} \left( 5 * (2+3) \right)$$