

HW 11

S.13, S.14

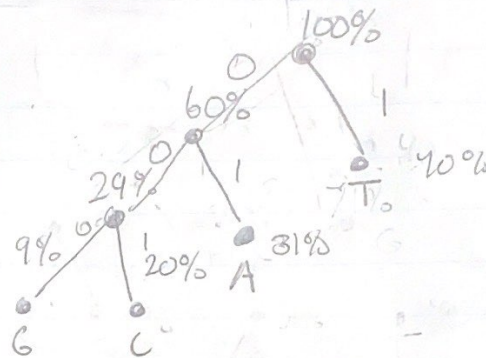
 $S_{13})$ 

Q A: 31%

2C: 20%

6 G:  $\frac{90}{10}$

19T: 40%



Queue  
G, C, A, T  
↑                      ↑  
20%                      60%

## Coding

$$G = 0.60$$
$$A = 0.1$$

$C = 0.01$

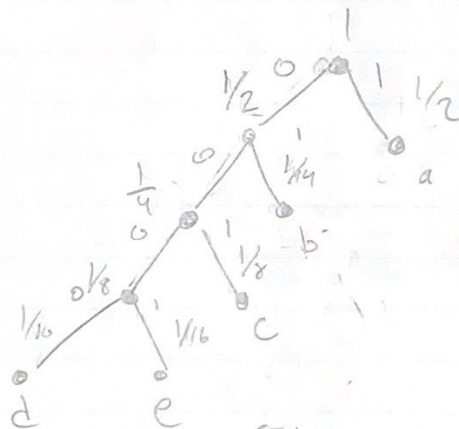
$$T = 1$$

S.14)

a	$\frac{1}{2}$
b	$\frac{1}{4}$
c	$\frac{1}{8}$
d	$\frac{1}{10}$
e	$\frac{1}{10}$

Frequency

a)



## Coding

$a=1, b=01, c=001, d=0000, e=0001$

Queue  
~~1~~, ~~2~~, ~~4~~, ~~6~~, ~~8~~  
↑ ↑ ↑  
~~1/8~~ ~~1/4~~ ~~1/2~~

Frequency

b)

a	$\frac{1}{2}$	$= 500,000 \times 1 \text{ bit} =$
b	$\frac{1}{4}$	$250,000 \times 2 \text{ bits} =$
c	$\frac{1}{8}$	$125,000 \times 3 \text{ bits}$
d	$\frac{1}{16}$	$62,500 \times 4 \text{ bits}$
e	$\frac{1}{16}$	$62,500 \times 4 \text{ bits}$

1,500,000

500,000

375,000

1250,000

+ 250,000

1,875,000 bits