CIS 3223 TMQ 9

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Name: Solutions

Temple ID (last 4 digits):

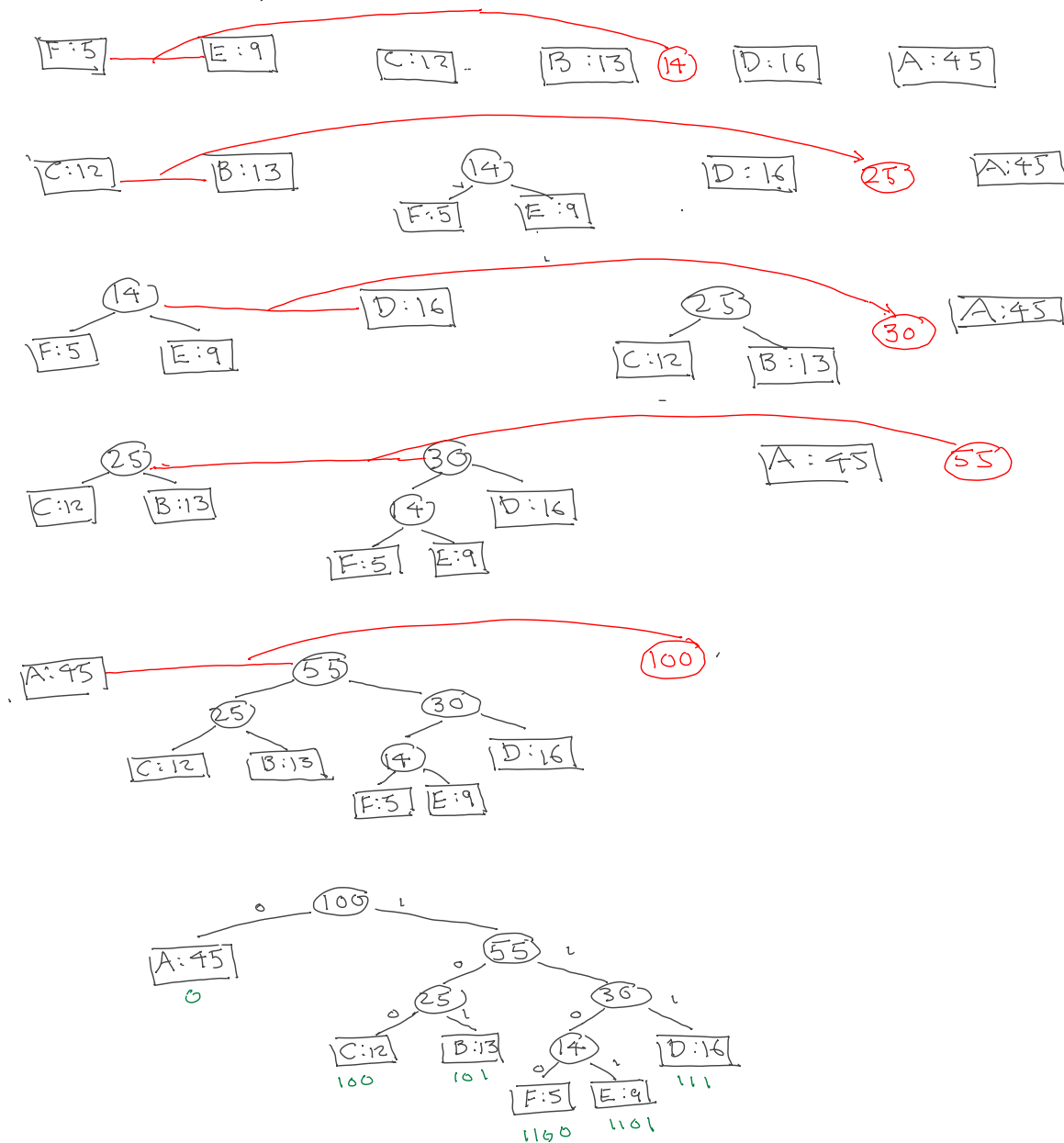| Letter frequency table						
Letter	A	B	C	D	E	F
Frequency	45	13	12	16	9	5

Construct the Huffman tree.

Complete the table, list letters in **binary order**.

Decode 1100|10|00|1101|111| _F A C A E D_

Letter	Code	Bits
A	0	1
C	100	3
B	101	3
D	111	3
F	1100	4
E	1101	4
Average bits/letter		2.24

224/100

F A C A E D

(extra credit, on back) How do you write an encoded string as a sequence of bits?

Extra credit.

Write code words as strings of `0` and `1` characters

Convert every 8 characters and write as an 8-bit integer

e.g str = `FACAED`

`110 0100|0 1101111`

| 11_001 00 | | 0110 1111 |ı

↓

write

Can use 16, 32 or 64

```
n = length (str);
w = uint8(0);

for i = 1 to n
    if str(i) == `1`
        bitset (w, i);
    if i == 8
        write (file, w)
        w = uint8(0)
    end
end
end

* need multiples of 8
```