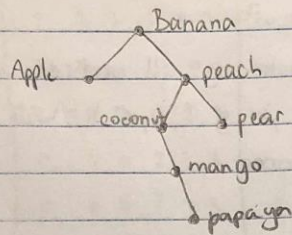
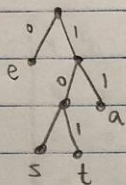


11.2

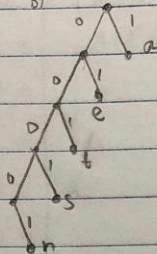
1.



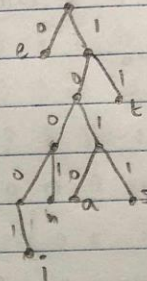
20. a)



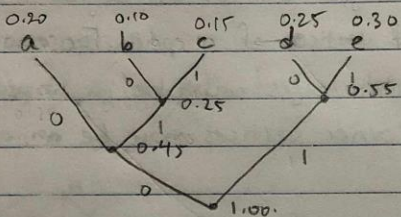
b)



c)



23.



$$a = 00 \quad a_w = 2$$

$$b = 010 \quad b_w = 3$$

$$c = 011 \quad c_w = 3$$

$$d = 10 \quad d_w = 2$$

$$e = 11 \quad e_w = 2$$

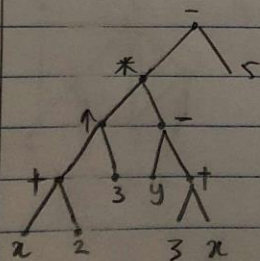
$$2(0.20) + 3(0.10) + 3(0.15) + 2(0.25) + 2(0.30) = 2.25$$

Average number of bits = 2.25.

11.3

8. Preorder traversal visit: a, b, d, e, i, j, m, n, o, c, f, g, h, k, l, p

16. a) $((x+2) \uparrow 3) * (y + (3+x)) - 5$



b) Prefix: $- * \uparrow + x 2 3 - y + 3 x 5 -$

c) Postfix: $x 2 + 3 \uparrow y 3 x + - * 5 -$

d) Infix: $((x+2) \uparrow 3) * (y - (x+3)) - 5$