SC205- Discrete Mathematics

Home Work 10

Tutorial Discussion Week: April 6, 2020

(1) How many edges does a tree with 10000 vertices have?

(2) How many vertices does a full 5-ary tree with 1000 internal vertices have?

(3) Construct the binary tree with prefix codes representing the coding schemes

$$a : 11, e : 0, t : 101, s : 100.$$

(4) Given the coding scheme $a : 001, b : 0001, e : 1, r : 0000, s : 0100, t : 011, x : 01010$, find the word represented by 01110100011.

(5) Use Huffman coding to encode these symbols with given frequencies: $a : 0.20, b : 0.10, c : 0.15, d : 0.25, e : 0.30$. What is the average number of bits required to encode a character?

(6) Suppose that the address of the vertex in the ordered rooted tree T is 3.4.5.2.4. At what level is? What is the address of the parent?