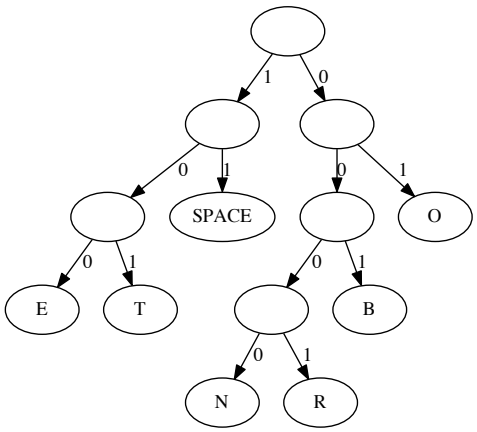
Math 1660

Huffman codes

Morse code:

A ●−	J ●−−−	S ●●●
B −●●●	K −●−	T −
C −●−●	L ●−●●	U ●●−
D −●●	M −−	V ●●●−
E ●	N −●	W ●−−
F ●●−●	O −−−	X −●●−
G −−●	P ●−−●	Y −●−−
H ●●●●	Q −−●−	Z −−●●
I ●●	R ●−●	

1. Using the Huffman tree below, encode the word "ROBOT"



2. Using the Huffman tree above, decode:
   `10101110011001101000111000001101111010111001100`
3. Generate a Huffman tree with letter frequencies from the word "SLEEPLESSNESS".
4. How many bits would it take to represent the word SLEEPLESSNESS using a fixed length code?
5. How many bits does it take to represent SLEEPLESSNESS with Huffman encoding?
6. Generate a Huffman tree where the nodes are words. Use the phrase:

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IF A WOOD CHUCK COULD CHUCK WOOD
THEN HOW MUCH WOOD WOULD A WOOD CHUCK CHUCK
IF A WOOD CHUCK COULD CHUCK WOOD
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