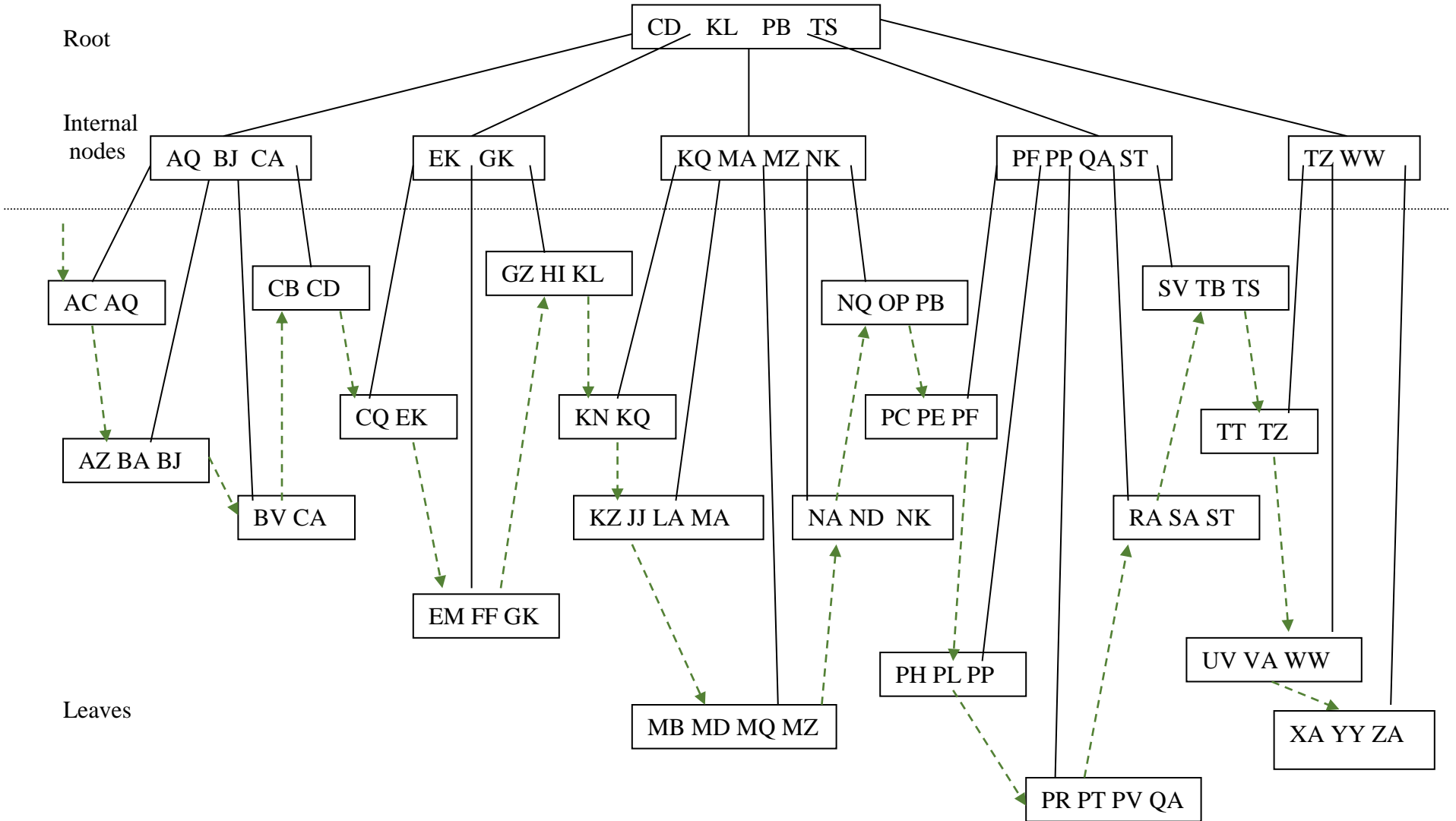


B+ Tree Worksheet Picture

Consider the following B+ Tree, where the key is a two letter string and the tree is a 4-5 tree. Answer the questions on the next pages.



B+ Tree Worksheet

Name _____

Given this B+ Tree answer the following questions:

What is the minimum number of keys that the root may contain?

What is the minimum and maximum number of keys that an interior node may contain?

How many new keys could be inserted into the entire tree's leaves without any splits occurring?

How many disk accesses would be required to find the data of record KL?

Using dynamic access, how many additional accesses would be needed to dynamically process all the rest of the K records, once KL has been found?

Consider the insertion of record MC. Do not carry items. (It may help to redraw the picture on another paper)

Which old blocks will be rewritten? What new blocks will replace the old?

What keys will the root contain when this is done?

B+ Tree Worksheet (continued)

Name _____

Consider the deletion of record VA after the above insertion. Do not use borrowing.
Which old blocks will be rewritten? What new blocks will replace the old?

Consider the deletion of record CB after this. Do not use borrowing.
Which old blocks will be rewritten? What new blocks will replace the old?

What keys will the root contain after both of these deletions are done?