# Exercises 8

(1) The following assignments just for your reference.

① For a linear table with n elements, what is the average search length when using the sequential search method? If the node is orderly, then what is the average search length of the binary search method?

② Set keywords in the binary sort tree to be different from each other: (a) The smallest element has no left child and the largest element has no right child. Is this proposition correct? (B) Are the maximum and minimum elements necessarily leaf nodes? (C) Is a new node always inserted at leaf nodes?

(2) The following assignments must be submitted by you.

③ Insert the key sequence (10, 2, 26, 4, 18, 24, 21, 15, 8, 23, 5, 12, 14) into a binary sort tree (BST) whose initial state is empty. And then draw the binary sort tree T1 after deleting 10; If 10 is inserted into T1 and obtains a T2, then T1 and T2 are the same?

④ Set the key sequence to be (11, 14, 23, 01, 68, 84, 27, 55, 11, 34, 79), the hash function is H (key) = key MOD 11, (a) use the open-address method to solve the conflict, and please construct the hash table for the keyword sequence. (b)resolve the conflict using the open-address method's secondary probe method, and please construct a hash table for the key sequence.

⑤ The following figure is a 3-order B_ tree. Please draw the B_ tree after inserting the keywords B, L, P and Q.
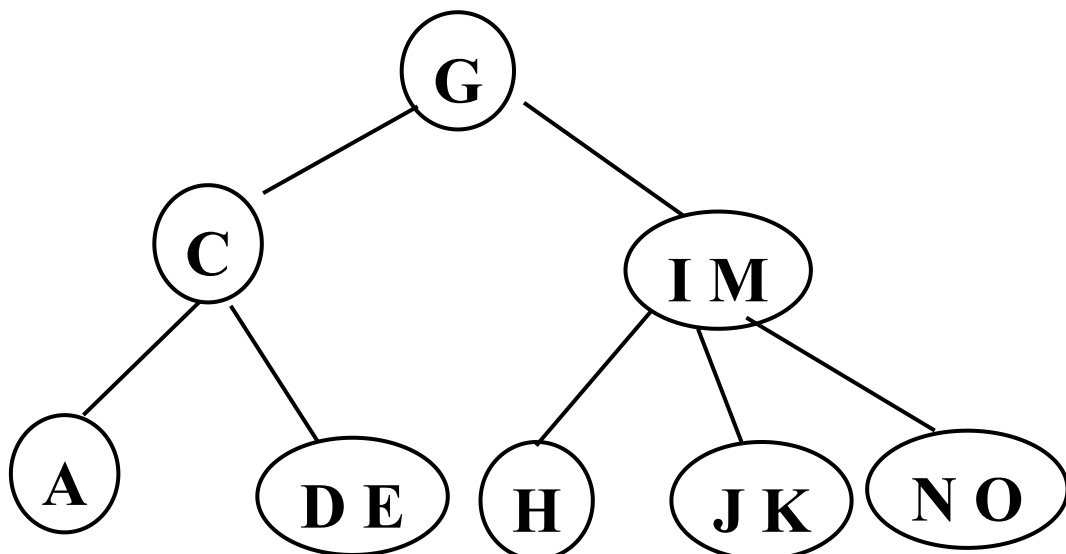
作业 8（中文翻译）

①对于一个有 n 个元素的线性表，若采用顺序查找方法时的平均查找长度是什么？若结点是有序的，则采用折半查找法是的平均查找长度是什么？

②设二叉排序树中的关键字互不相同：则：(a)最小元素无左孩子，最大元素无右孩子，此命题是否正确？(b)最大和最小元素一定是叶子结点吗？(c)一个新结点总是插入在叶子结点上吗？

③将关键字序列(10, 2, 26, 4, 18, 24, 21, 15, 8, 23, 5, 12, 14)依次插入到初态为空的二叉排序树中，请画出所得到的树 T；然后画出删除 10 之后的二叉排序树 T1；若再将 10 插入到 T1 中得到的二叉排序树 T2 是否与 T1 相同？请给出 T2 的先序、中序和后序遍历序列。

④设关键字序列是(19, 14, 23, 01, 68, 84, 27, 55, 11, 34, 79)，散列表长度是 11，散列函数是 H(key)=key MOD 11，(a)采用开放地址法的线性探测方法解决冲突，请构造该关键字序列的哈希表。(b)采用开放地址法的二次探测方法解决冲突，请构造该关键字序列的哈希表。

⑤下图是一棵 3 阶 B_树，请画出插入关键字 B, L, P, Q 后的树形（字目的大小由它们在 26 个英文字目表中的顺序来表示）。