Additional Practice problems for B+Tree indexing

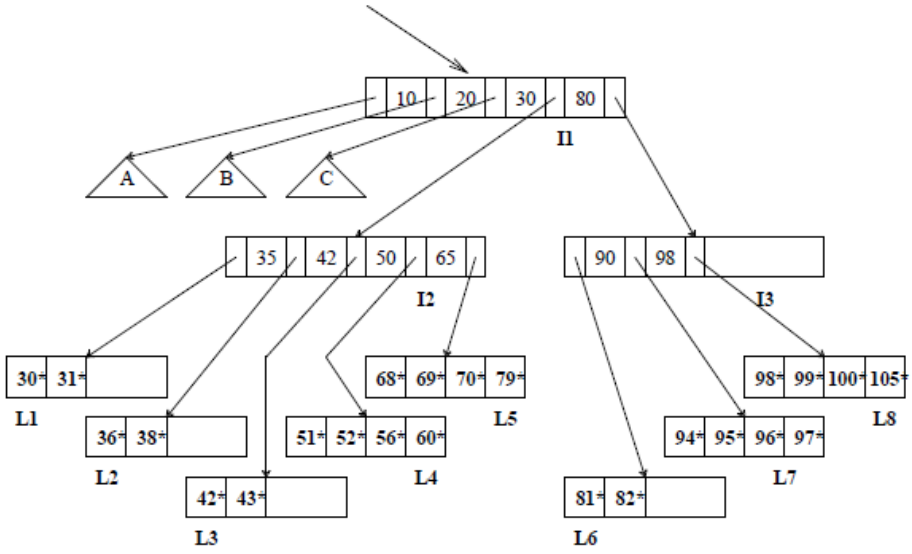

Figure 1: Dense B+Tree index

Consider the dense B+tree index in Figure 1. Suppose it uses the data entry format 2 (search key value, record id). Each intermediate node can hold up to five pointers and four key values. Each leaf node can hold up to four records, and leaf nodes are doubly linked as usual, although these links are not shown in the figure.

You can use the labels L1, L2, L3, L4, L5, L6, L7, L8, I1, I2, and I3 to represent the tree nodes.

a. What is the order of this tree?
b. Name all the three nodes that must be fetched to answer the query “Get all the records with a search key value of 38.
c. Name all the three nodes that must be fetched to answer the query “Get all the records with a search key value of 106.
d. Which of these nodes can have less than two key values?
e. What can we say about the content of the subtrees A, B, and C?