ICA #2 : B+Trees Basics.

Wednesday, January 18, 2023 6:43 PM

You are given a file of 40×10^6 records, each 200 bytes long. You wish to build a B+tree index for this file on the primary key, using alt 1 data entries (DEs). Each key is 32 bytes and a pointer is 8 bytes. Each node of the B+tree is implemented as a 4K page (i.e., 4×2^{10} bytes). Answer the following:

(a) The max # (key, pointer) pairs that a node can store = _____.

(b) Order of this B+tree = _____.

(c) max # records that would fit in a page = _____.

(d) min. possible height of this B+tree = _____.

= _____.

(e) max.

Note: For (d) & (e), do not use formulas. Instead, start with the # leaf pages needed to hold the DEs, work bottom up, from leaves to their parents, to grandparents, ..., to the root.

Feel free to write your work below.