CSC430/530 – Database Management Systems
Assignment #5 – Indexing Structures

Consider a disk with a block size **B = 1024 bytes** and a block pointer **P = 12 bytes**. Suppose, file has **r = 69632** EMPLOYEE records of fixed length.
Each record has following attributes:

- First_name (*60 bytes*);
- SSN (*18 bytes*);
- Dnumber (*18 bytes*);
- Home_address (*80 bytes*);
- Contact_phone (*20 bytes*);
- BDate (*16 bytes*);
- Gender (*2 byte*);
- Job_code (*8 bytes*);
- Salary (*8 bytes*);
- Additional *2 bytes* are used as a deletion marker.

a. Assuming an unspanned organization, calculate following.
***To get full points, please, show all formulas and calculations.**

- Record size **R** (in bytes).

- Blocking factor **bfr.**

- Number of file blocks **b**.

b. Assuming file is ordered by key attribute **Ssn** and primary index is constructed on this key attribute, calculate following.
***To get full points, please, show all formulas and calculations.**

- Index blocking factor $\mathbf{bfr_i}$.

- Total number of indexes $\mathbf{r_i}$ and number of index blocks $\mathbf{b_i}$.

- Total number of accesses needed to search for a record using primary index.