**CS150A Quiz03**

**B+ Trees**

**Q1**: Suppose that all nodes in our B+ tree have an order of 1500. What's the MAXIMUM number of records we can index with a B+ tree of height 2?

*Assume our B+ trees are laid out as in lecture.*

**Q2**: We want to bulk-load a B+ tree, and we increase the fill factor of this bulk load. Which of the following applies, in general?

*Check all that apply.*

1. The bulk loading operation is faster
2. The bulk loading operation is slower
3. We consume more disk space
4. A sequence of many consecutive record lookups is faster
5. A sequence of many consecutive insertions requires fewer disk writes

**Q3**: We insert the key 60 into the B+ tree in Figure A. How many I/Os (page reads and

writes) does this operation take?

*Assume we require zero page reads and one page write to create a new page from scratch. Also assume that we do key redistribution. Exclude disk I/Os done to data pages. Finally, assume we have 20 pages of memory available for caching pages in memory after reading them.*



**Figure A**

**Q4**: After performing the insert in Q3, what's the maximum number of keys we can insert into the B+ tree in Figure A without splitting the ROOT?