1. Suppose we have the following keys \{A, B, C, D, E, F, G\} that we want to store in a binary search tree. Suppose the access probabilities of each of the keys are as follows \(p(A) = .1, p(B) = .1, p(C) = .1, p(D) = .1, p(E) = .2, p(F) = .15, p(G) = .25\). What is the expected number of node accesses if we store the data in a balanced search tree (with \(D\) at the root)? What is the expected number of node accesses if we store the data in a completely unbalanced search tree (with \(A\) at the root)? What is the tree configuration with the lowest expected number of node accesses that you can find?