

PSG COLLEGE OF TECHNOLOGY
DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES
M.Sc (SS) – Design and Analysis of Algorithms
Home work 3 (Multi-way search trees)

1. Construct a 5-way search tree with the following elements: car, van, ban, hay, mat, bat, hat, cat, can, dog. Perform the following operations on the original tree.
 - (i) Insert bat
 - (ii) Insert may
 - (iii) Insert bay
 - (iv) Insert way
 - (v) Insert day
 - (vi) Delete may
 - (vii) Delete dog
 - (viii) Delete mat
 - (ix) Delete hay
 - (x) Delete can
2. Construct a 4 way search tree with the elements in Question 1.
3. Construct a B tree of order 5 with the following elements: jeep, make, sake, fake, take, bake, hate, date, rate, hike. Perform the following operations on the original tree.
 - (i) Insert sick
 - (ii) Insert look
 - (iii) Insert heat
 - (iv) Delete sake
 - (v) Delete fake
 - (vi) Delete sick
 - (vii) Delete jeep
4. Construct a B tree of order 4 with the elements in Question 3. Consider that the operations are performed sequentially.
5. Construct a B+ tree of order 5 with the following elements: jeep, make, sake, fake, take, bake, hate, date, rate, hike. Perform the following operations on the original tree.
 - (i) Insert sick
 - (ii) Insert look
 - (iii) Insert heat
 - (iv) Delete sake
 - (v) Delete fake
 - (vi) Delete sick
 - (vii) Delete jeep
6. Construct a B+ tree of order 6 with the elements in Question 5 and perform the operations given below. Consider that the operations are performed sequentially.
 - (i) Insert cake
 - (ii) Insert snow
 - (iii) Insert wipe
 - (iv) Insert clay
 - (v) Delete make
 - (vi) Delete fake
 - (vii) Delete cake