Assignment 4

1. Suppose that we are using extendable hashing on a file that contains records with the following search key values:

2,3,5,7,11,17,19,23,29,31

Show the extendable hash structure for this file if the hash function is h(x) = x mod 8 and buckets can hold three records. 5M

1. a. Explain LRU and MRU Buffer replacement policies.

b. Compare and contrast Raid Level 3, 4, 5 and 6. (3+2)

1. a. What is B+ tree? Explain the structure of B+ Tree with an example.

b. Explain the processing of queries on a B+ tree. (3+2)

1. a. What do you understand by Static Hashing. Explain the handling of Bucket Overflows.

b. Explain Dense and Sparse Indexes with example. (3+2)

1. a. Let R=A B C D E F G H) and F={BE🡪GH,G🡪AF,D🡪C,F🡪B,GE🡪HF} check for BCNF. If not decompose it into BCNF.
2. b. a.Check where the give schedule (s)S r1(X); r3(X); w3(X); w1(X); r2(X);and S2: r3(X) ; r3(Y); w3(Y); r1(X); r1(Z); w1(X); r2(Z); r2(Y); w2(Z); w2(Y); are serializable or not. (2+3)

Assignment 5

1. a. Explain two different methods of File organization.

b. Compare the bit level stripping method with the block level stripping method of the disks.   
 (3+2)

1. a. Explain Dynamic Hashing with a proper example.

b. Compare ordered indexing and hashing. (3+2)

1. Construct a B+ tree for the following set of key values: (2,3,5,7,11,17,19,23,29,31). Assume that the tree is initially empty and values are added in ascending order. Show the form of the tree after each of the following series of operations : Insert 9, Insert 10, Insert 8, Delete 23 and Delete 19. Construct the trees where the number of pointers that will fit in one node is Four.   
    5M
2. a. What is Bitmap Index? Explain the structure of Bitmap Index.

b. Brief about the different ways of Multiple Key Access to process a query on a relation.

1. a.Check where the give schedule (s)S: r1(X); r3(X); w1(X); r2(X); w3(X); and S2:r1(X); r2(Z); r3(X); r1(Z); r2(Y); r3(Y); w1(X); c1; w2(Z); w3(Y); w2(Y); c3; c2; are serializable or not.

b. Consider a table (S, T, V, C, D,P) with the FDs as follows F={S → T,V → SC,SD→ PV} check for BCNF. If not in BCNF decompose it BCNF. (3+2) (3