1. The method of access that uses key transformation is called as  
a) Direct  
b) Hash  
c) Random  
d) Sequential

Answer: b  
Explanation: Hash technique uses particular hash key value.

2. Why do we need concurrency control on B+ trees ?  
a) To remove the unwanted data  
b) To easily add the index elements  
c) To maintain accuracy of index  
d) All of the mentioned

Answer: c  
Explanation: Indices do not have to be treated like other database structures.

3. How many techniques are available to control concurrency on B+ trees?  
a) One  
b) Three  
c) Four  
d) None of the mentioned

Answer: d  
Explanation: Two techniques are present.

4. In crabbing protocol locking  
a) Goes down the tree and back up  
b) Goes up the tree and back down  
c) Goes down the tree and releases  
d) Goes up the tree and releases

Answer: a  
Explanation: It moves in a crab like manner.

5. The deadlock can be handled by  
a) Removing the nodes that are deadlocked  
b) Restarting the search after releasing the lock  
c) Restarting the search without releasing the lock  
d) Resuming the search

Answer: b  
Explanation: Crabbing protocol moves in a crab like manner.

6. In crabbing protocol, the lock obtained on the root node is in \_\_\_\_\_\_\_\_\_ mode.  
a) Shared  
b) Exclusive  
c) Read only  
d) None of the mentioned

Answer: a  
Explanation: Crabbing protocol moves in a crab like manner down the index tree.

7. If needed to split a node or coalesce it with its siblings, or redistribute key values between siblings, the crabbing protocol locks the parent of the node in \_\_\_\_\_\_\_\_\_\_\_\_ mode.  
a) Shared  
b) Exclusive  
c) Read only  
d) None of the mentioned

Answer: b  
Explanation: Crabbing protocol moves in a crab like manner down the index tree.

8. In crabbing protocol to inset or delete a key value the leaf node has to be locked in \_\_\_\_\_\_\_\_\_\_\_ mode.  
a) Shared  
b) Exclusive  
c) Read only  
d) None of the mentioned

Answer: b  
Explanation: Crabbing protocol moves in a crab like manner down the index tree.

9. B-link tree requires a pointer to its \_\_\_\_\_\_\_\_\_\_ sibling.  
a) Upper  
b) Lower  
c) Right  
d) Left

Answer: c  
Explanation: This pointer is required because a lookup that occurs while a node is being split may have to search not only that node but also that node’s right sibling.

10. Instead of locking index leaf nodes in a two-phase manner, some index concurrency-control schemes use \_\_\_\_\_\_\_\_\_\_\_ on individual key values, allowing other key values to be inserted or deleted from the same leaf.  
a) B+ tree locking  
b) Link level locking  
c) Key-value locking  
d) Next value locking

Answer: c  
Explanation: Key-value locking thus provides increased concurrency.