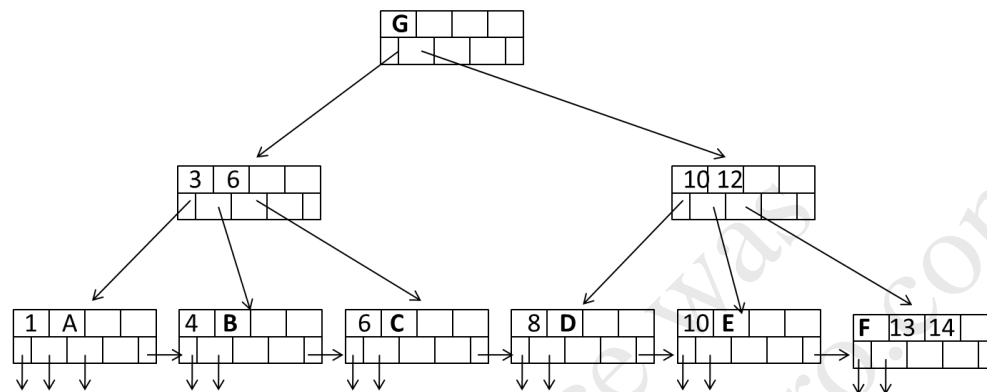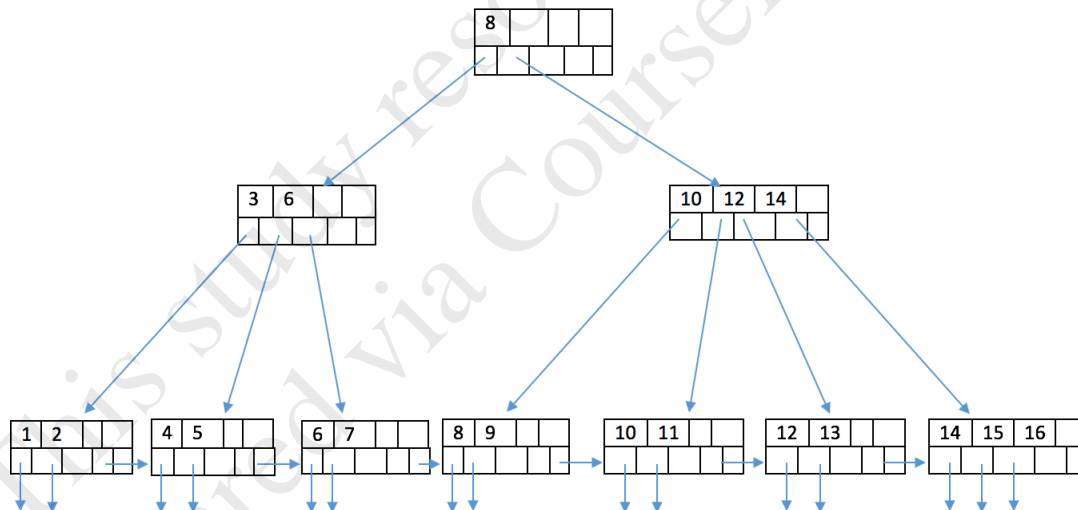# INF 551 – Fall 2017 (Afternoon section)
Quiz 10: B+-tree & MongoDB (10 points), 15 minutes

1. [4 points] Suppose that in a recent LA wild fire, we lost the values of some keys (indicated by letters: A, B, …, G) in a B+-tree show below. Suppose the degree of the tree **d** = 2. You are asked to recover the value of these keys. You may write the values next to the keys.

A:2, B:5, C:7, D:9, E:11, F:12, G:8

2. [3 points] Consider inserting keys 15 and 16 into the tree. Draw the updated tree.

3. [3 points] Write a MongoDB operation that corresponds to the SQL query below:

```
Select category, sum(qty) total
from product
group by category
having total > 50
```

db. product. aggregate ([{$group: {_id: "$category", total:{$sum: "$qty"}}},{$match:{total:{$gt:50}}}])