**Assignment 13**

**1. Consider the multi-way search tree of Slide 5 in the Lecture 13 notes, is it a (2,4)  
tree? Justify your answer.**

It is not a 2-4 tree because all the children should be in the same level but in the given diagram, children of node 30 are not in the same level.

**2. Consider the following sequence of keys:  
(5, 16, 22, 45, 2, 10, 18, 30, 50, 12, 1, 25, 7)  
Insert items with this set of keys, in the order given, into an empty (2,4)-tree.**

16

5

22 45

18

25 30

50

7 10 12

1 2

**R-3.10 A certain Professor Amongus claims that a (2,4) tree storing a set of items will  
always have the same structure, regardless of the order in which the items are inserted.  
Show that Professor Amongus is wrong.**

The structure of 2-4 tree differs based on the series of items entered in the tree eventhough the sorted result becomes same.

For Example; 2,4,8,6 and 2,6,8,4

4

2

6 8

6

2 4

8