**R-3.18 Answer:**

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| --- |
| No, it is not a (2, 4) tree because (2,4) tree has following properties  1. Node-Size Property: every internal node has at most four children  2. Depth Property: all the external nodes have the same depth  So, the multi way search tree of Figure 3.17a is not a (2,4) tree because  As the external nodes don't have the same depth of the multi way search tree of Figure 3.17a, It can be a (2, 4) tree. |

**R-3.10 Answer:**

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| --- |
| if we insert following items in this order we get below structure { 4, 6, 12, 15, 3, 5, 10, 8 }  C:\Users\Jainal Uddin\Downloads\Shareit\Photo\20150309_005553 (2).jpg |
| Now, if we change the order(reverse order): { 8, 10, 5, 3, 15, 12, 6, 4 },we get a different structure for same items  C:\Users\Jainal Uddin\Downloads\Shareit\Photo\20150309_005553 (3).jpg  Therefore, we can conclude that order is matter and Professor Amongus is wrong. |

**C-4.11 Answer:**

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| --- |
| Algorithm electionWinner**(**S**,** C**)**  Input**:** Sequence S of votes and Sequence SC of candidates  Ouput**:**Id of winner candidate    D**<-new** Dictionary**(**Hastable**)**  **for** each id of C **do**  D**.**insertItem**(**id**,**0**)**  **for** each y of S **do**  cnt**<-**D**.**findElement**(**x**)**  D**.**insertItem**(**y**,**cnt **+** 1**)**  winnerId **<-** **-**1  **for** each **(**id**,**cnt**)** of D**.**items**()** **do**  **if** cnt **>** winnerId then  winnerId**<-**id  winnerCount**<-**cnt  **return** winnerId |

**C-4.22 Answer:**

|  |
| --- |
| Algorithm isSumEqual**(**A**,**B**,**x**)**  Input**:** Two Sequence A**,** B and integer x  Ouput**:** **true** or **false** **if** such two intergers of A and B makes x  T **<-** insert A into Redblack tree  **for** each y of B **do**  **if** T**.**findElement**(**x**-**y**)** **!=** NULL then  **return** **true**  **return** **false** |