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COM 2005 Data Structures
Resit Exam, 31.01.2025, 13:15
Duration : **75** Minutes

SOLUTIONS

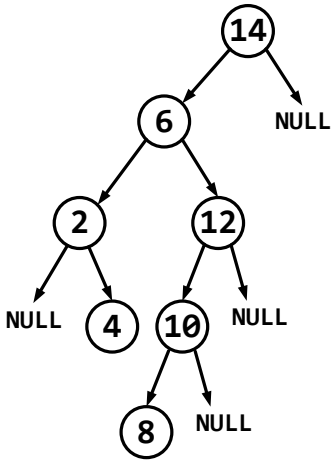
```
void BinaryTree::eulerLike(TreeNode* v)
{
      if (v->left != NULL)
      {
            cout << v->elem;
            eulerLike(v->left);
      }

      if (v->right != NULL)
      {
            eulerLike(v->right);
            cout << v->elem;
      }

      cout << v->elem;
}

int main()
{
   BinaryTree binaryTree;
   binaryTree.addNode(binaryTree.root, 12);
   binaryTree.addNode(binaryTree.root, 10);
   binaryTree.addNode(binaryTree.root, 14);
   binaryTree.addNode(binaryTree.root,  9);
   binaryTree.addNode(binaryTree.root, 11);
   binaryTree.addNode(binaryTree.root, 13);
   binaryTree.addNode(binaryTree.root, 15);

   binaryTree.eulerLike(binaryTree.root);
}
```

1. What is the output of the program above? **(30P)**

12	10	9	11	10	10	14	13	15	14	14	12	12

2. How many times does the function **eulerLike()** call itself recursively? **(30P)**

A)4 ***B)6*** **C)8** **D)10** **E)12**



3. Which pattern produces the **Splay** tree above? **(40P)**

(A) 8 4 12 2 6 10 14
(B) 8 4 12 6 2 10 14
(C) 8 4 12 6 10 2 14
(D) 8 4 12 10 6 2 14
(E) 8 4 12 2 10 6 14