

吉林 大学

二〇一四年攻读硕士学位研究生入学考试试题

试题编号: 91617 试题名称: 综合

共 3 页

一、(30 分) 任意一个大于 2 的偶数, 都可以分解为两个质数之和, 编写一个程序, 验证上述结论。
例如: 输入 16, 输出 $16=13+3$

二、(30 分) 编写程序, 输入 A, B, C, D 四个点的坐标, 假设 A, B, C 三点可以构成一个三角形, 判断 D 点是否落在三角形内。

三、(25 分) 为了进行高精度计算, 我们可以用一个数组表示一个正整数, 一个数组元素表示整数的一位, 例如 396 可以用数组 A 表示, 即 $A[1]=3, A[2]=9, A[3]=6$, 编写一个函数, 计算这样表示的两个整数 A, B 之积, 积存放在数组 C 中。注: 假定积不会超过 100 位。

四、(15 分) 平面上有 100 个点, 任意三个点可以构成一个三角形, 编写一个程序, 输入 100 个点的坐标, 输出在构成的所有三角形中, 最大的三角形的面积。

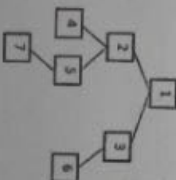
五、简答题 (共 30 分)

1. (5 分) 对于一个栈, 给出输入序列 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 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六、按要求编写算法 (共 20 分)

(1) (10 分) 如果要对二叉树进行自下向上、自右向左的层次遍历, 请给出遍历算法。

(2) (10 分) 平衡二叉树是任意结点左右子树的深度相差不超过 1 的二叉树, 例如下图所示的二叉树就是一棵平衡二叉树。



已知一棵二叉树采用二叉链表存储, 结点结构为(left, data, right), root 指向根结点。请编写算法判断该二叉树是否是一棵平衡二叉树。

算法题要求:

- (1) 概要描述算法的思想;
- (2) 在关键的地方给出清晰的注释;
- (3) 算法可使用 C 或 ADL 语言描述。

第 3 页

计算机/软件工程专业
每个学校的
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