**浙江农林大学 2021- 2022学年第 一 学期考试卷（A卷）**

**数据结构与算法参考答案**

1. 填空题(每空1分，共10分)
2. 后进先出
3. n×n
4. 头结点的指针指向自身
5. n+1
6. n(n+1)/2
7. 普里姆算法和克鲁斯卡尔算法
8. O(nlogn)
9. 3.62
10. 19,44,48,50,63,80
11. 判断题（每小题2分，共20分）

1．√ 2．×

3. √ 4. ×

5. √ 6. ×

7. × 8. ×

9. √ 10. √

三、选择题每小题2分，共20分）

1.D 2.B

3.B 4.C

5.D 6.D

7.C 8.A

9.B 10.C

四、基本概念题

1.（5+5=10分）

邻接矩阵：

V1 V2 V3 V4 V5 V6

V1 0 1 0 1 0 0

V2 0 0 0 0 1 0

V3 0 1 0 0 0 1

V4 0 0 1 0 0 1

V5 0 0 0 0 0 0

V6 0 0 0 0 1 0

邻接表：

|  |  |
| --- | --- |
| V1 | V4 ^  V2 |
| V2 | V5 ^ |
| V3 | V6 ^  V2 |
| V4 | V3  V6 ^ |
| V5 | ^ |
| `V6 | V5 ^ |

2. （10分）

证明： 假设N:总的结点数; N0: 度为0的结点数；N1: 度为1的结点数；N2: 度为2的结点数；B:分支数。则有：

N= N0+N1+N2=B+1 --------- (1)

B = N0\*0 + N1\*1+N2\*2 --------- (2)

于是有 N2= N0+1.

3.（5+5=10分）

线性探测法：

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|  | 14 | 1 | 68 | 27 | 55 | 19 | 20 | 84 | 79 | 23 | 11 | 10 |

二次探测法：

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 27 | 14 | 1 | 68 | 55 | 84 | 19 | 20 | 79 | 10 | 23 | 11 |  |

五、

1.本题5分

Int Partitiont(SqList &L,int low,int high)

{

Pivotkey = L.r[low].key

While(low<high)

{

While(low<high && L.r[high].key>=pivotkey) --high;

L.r[low] 🡨----> L.r[high];

While(low<high && L.r[high].key<=pivotkey) ++low;

L.r[low] 🡨----> L.r[high];

}

Return low;

}

2.本题5分

Int Bisearch(SqList L, int x)

{//考生在此编写代码

Low=1;

High=L.length;

While(low<=high)

{

Mid = (low+high)/2

If(x == L[mid])

Return mid

Else if(x>L[mid]

High=mid-1

Else

Low = mid+1

}

}

3、本题10分

Int Height(BiTree T)

{

If(!T)

Return 0;

Else

{

int m = Height(T->lchild);

int n = Height(T->rchild);

return m > n ? m+1: n+1;

}

}