

17-18 学年第 2 学期期末《数据结构》试题 A 参考答案

一、填空题（每小题 2 分，共 10 分）

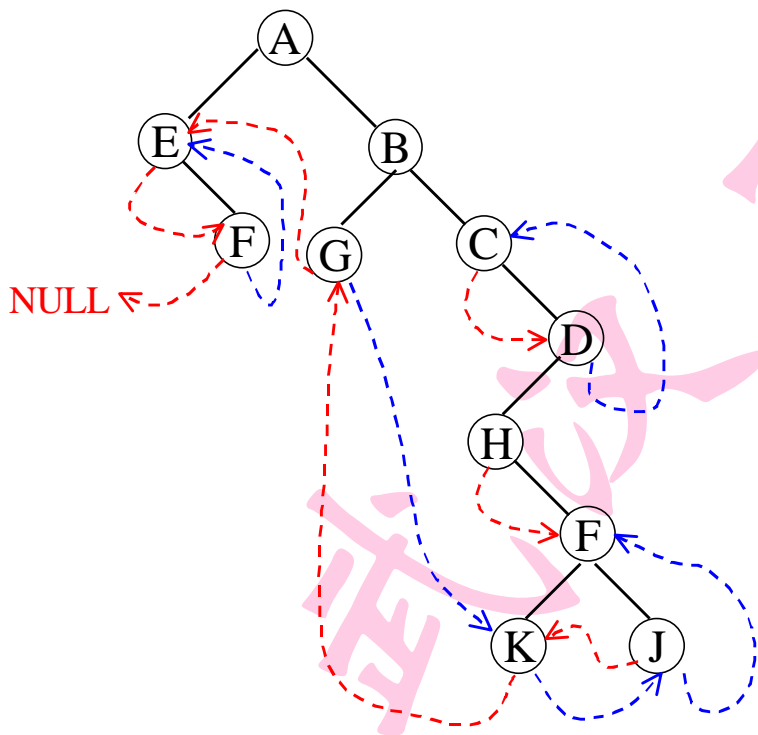
- 1. $O(n^2)$ 、 $O(n\log_2n)$
- 2. (1, 3, 2, 4, 5)
- 3. 3
- 4. 50
- 5. $N_0 - 1$ 、 $2N_0 + N_1$

二、选择题（每小题 2 分，共 20 分）

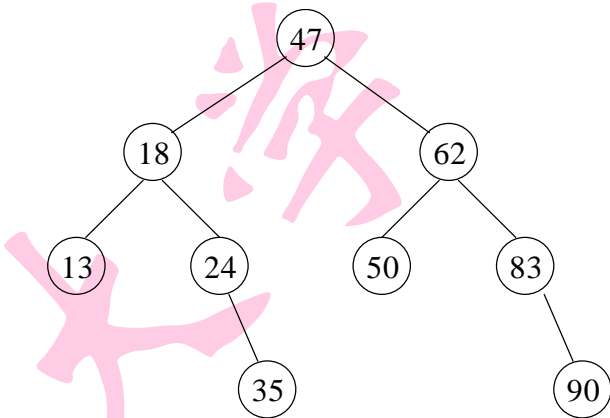
CACBC ABCAD

三、应用题（每小题 10 分，共 50 分）

1.



2. 2 次, $ASL_{succ} = \frac{1}{9} (1 \times 1 + 2 \times 2 + 4 \times 3 + 2 \times 4) = \frac{25}{9}$ 。



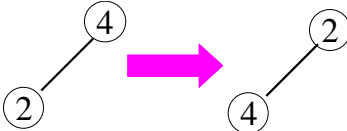
3.

(1) 插入 4



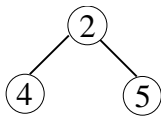
序列(4)

(2) 插入 2



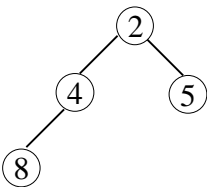
序列(2, 4)

(3) 插入 5



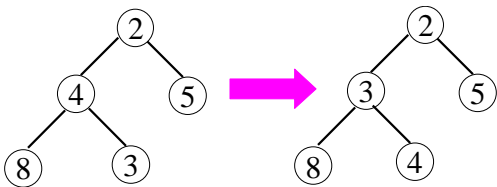
序列(2, 4, 5)

(4) 插入 8



序列(2, 4, 5, 8)

(5) 插入 3



序列(2, 3, 5, 8, 4)

4. (1, 6)4, (2, 3)5, (1, 7)6, (2, 4)8, (2, 5)12, (1, 2)18

5.

- (1) 深度优先序列: V1 V2 V3 V8 V5 V7 V4 V6
- (2) 广度优先序列: V1 V2 V4 V6 V3 V5 V7 V8

四、算法题（每小题 10 分，共 20 分）

1.

```
void split(LinkList head, LinkList &ha, LinkList &hb, LinkList &hc)
```

```
{ // 3 个链表均使用头插入法
```

```
    ha = hb = hc = 0;
```

```
    for (LinkList p = head; p != 0; p = p->next)
```

```
    {
```

```
        head = p->next;
```

```
        p->next = 0;
```

```
        if (p->data >= 'A' && p->data <= 'Z')
```

```
        {
```

```
            p->next = ha;
```

```
            ha = p;
```

```
        }
```

```
        else if (p->data >= '0' && p->data <= '9')
```

```
        {
```

```
            p->next = hb;
```

```
            hb = p;
```

```
        }
```

```
        else
```

```
        {
```

```
            p->next = hc;
```

```
            hc = p;
```

```
        }
```

```
    }
```

```
}
```

2.

```
void swapbitree(bitree *bt)
```

```
{
```

```
    if (bt)
```

```
    {
```

```
        swapbitree(bt->lchild);
```

```
        swapbitree(bt->rchild);
```

```
        bitree *p = bt->lchild;
```

```
        bt->lchild = bt->rchild;
```

```
        bt->rchild = p;
```

```
    }
```

```
}
```