

2023北邮809数据结构答案（非官方，仅供参考）

一、填空题

1. 线性结构 树 图
2. $O(1)$ $O(N^{1/2})$
3. `rear->next != rear`
4. $n/2$ $(n-1)/2$
5. $(rear+1)\%100 == front$ 40 60
6. $p = top$ $top = top->next$
7. $A[3][5]$
8. 250
9. 50 1 49 7
10. 102
11. 123 0011 10
12. 2^{n-1}
13. $n(n-1)/2$ n $n-1$
14. 8 3.3
15. 哈希查找
16. 1
17. 60
18. 计数 $O(n)$
19. 16, 27, 32, 38, 61, 96, 83, 54, 45

二、单选题

1. C
2. D
3. A
4. B
5. D
6. B
7. A
8. C
9. B
10. C
11. B
12. C
13. C
14. B
15. C
16. C
17. C
18. D

19. *B*
20. *C*
21. *B*
22. *A*
23. *D*
24. *C*
25. *D*

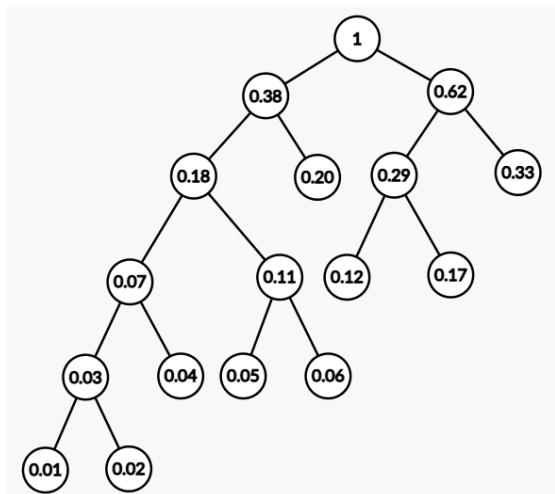
三、简答题

1.

- (1) (6)(7)(3)(12)
- (2) (15)(1)(11)(18)
- (3) (16)(15)(5)(14)(17)

2.

(1)



(2)

最长编码: 00000, 00001

最短编码: 01, 11

(3)

$$2 * (0.33 + 0.2) + 3 * (0.12 + 0.17) + 4 * (0.04 + 0.05 + 0.06) + 5 * (0.01 + 0.02) = 2.68$$

3.

(1)

0	1	2	3	4	5	6	7	8	9	10	11
54	23	13	1					41	20	32	10

(2)

$$(1 + 1 + 1 + 3 + 1 + 1 + 2 + 3) / 8 = 1.625$$

4.

- (1) 17, 98, 56, 35, 42, 84, 65, 25, 71
 (2) 42, 84, 17, 25, 65, 98, 56, 35, 71
 (3) 65, 98, 35, 56, 42, 84, 17, 25, 71
 (4) 25, 17, 56, 35, 42, 65, 84, 98, 71

四、综合题

1.

(1)

row	col	item
0	2	2
2	0	7
2	3	5
3	2	-4
矩阵行数:		4
矩阵列数:		4
非零元个数:		4

(2)

Col	0	1	2	3
number[col]	1	0	2	1
position[col]	0	1	1	3

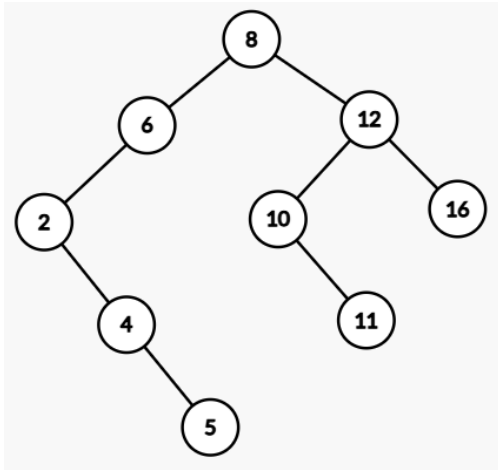
(3)

```
for(int i=0;i<=t;i++)
    number[data[i].col]++
```

```
position[0]=0;
for(int j=0;j<=t;j++)
    position[i]=position[i-1]+number[i-1];
```

2.

(1)



(2)

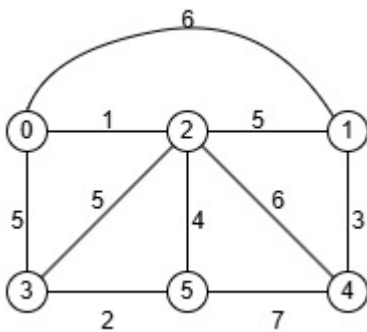
$$(1 * 1 + 2 * 2 + 3 * 3 + 2 * 4 + 1 * 5) / 9 = 3$$

(3)

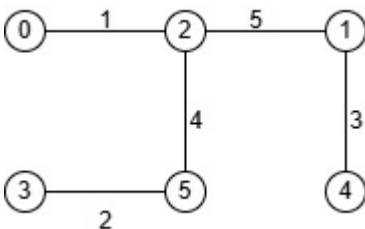
```
R = NULL
IsBST(R->lch)
pre->data
b && IsBST(R->rch)
return b
```

3.

(1)



(2)



(3)

深度优先遍历: 0, 2, 1, 4, 5, 3

广度优先遍历: 0, 1, 2, 3, 4, 5

(4)

```
f=r=0
queue[r++]=v
f!=r
```

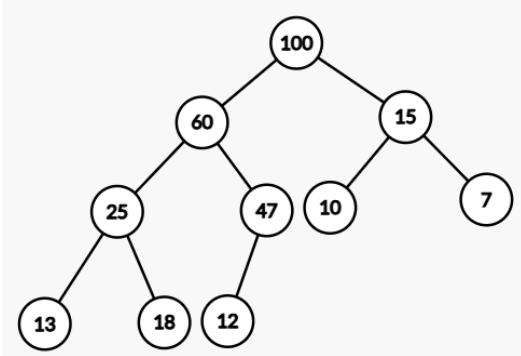
```

queue[f++]
!visited[i]
queue[r++]=i
visited[i]=1

```

4.

(1)



100, 60, 15, 25, 47, 10, 7, 13, 18, 12

(2)

```

2*i
j<=m
j+1<=m && r[j]<r[j+1]
break
i=j
j=2*i

```

5.

```

p->weight
srcVex
p->next
0
-1
if(s[j]==0 && dist[j]<min_dist
dist[j]
j
adjList[k].firstarc
s[j]==0 && d<dist[j]
d
k
p->next
pre != -1

```