2024北邮809数据结构答案（非官方，仅供参考）

一、填空

1. 150.5 300
2. 3.9 4.9
3. 8
4. 5
5. 先左后右双旋转
6. $m(m-1)/2$ $m-1$ 0
7. 58
8. $\lfloor log_2(i) \rfloor = \lfloor log_2(j) \rfloor$
9. 37
10. 有向
11. 将第i行元素全部置0
12. 21
13. 中序
14. 31
15. 6
16. $O(1)$
17. 线性结构 顺序存储 链式存储
18. 692
19. 10

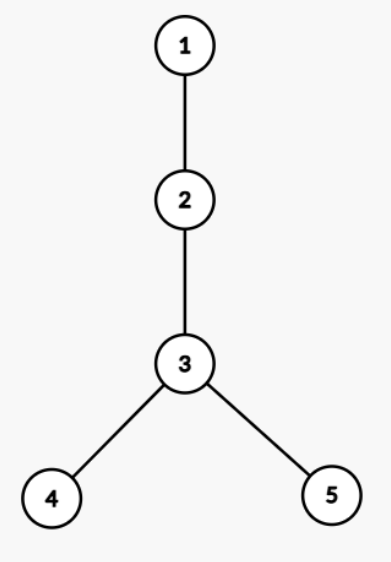
二、单选题

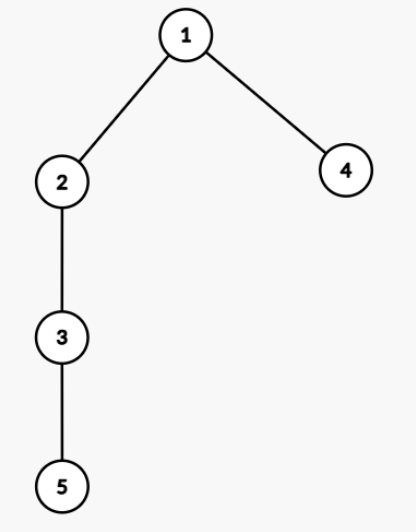
1. D
2. B
3. D
4. D
5. A
6. B
7. D
8. B
9. A
10. A
11. B
12. C
13. B
14. D
15. C

三、简答题

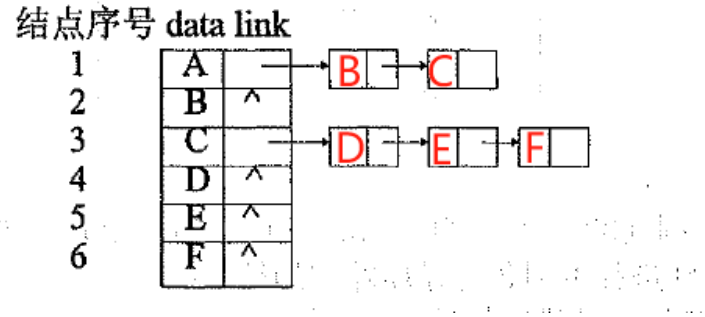
1.

深度优先遍历：$v_1 \rightarrow v_2 \rightarrow v_3 \rightarrow v_4 \rightarrow v_5$
广度优先遍历：$v_1 \rightarrow v_2 \rightarrow v_4 \rightarrow v_3 \rightarrow v_5$



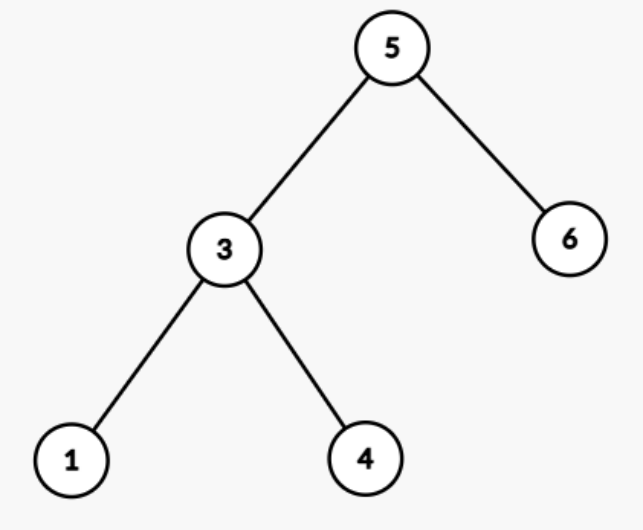


2.

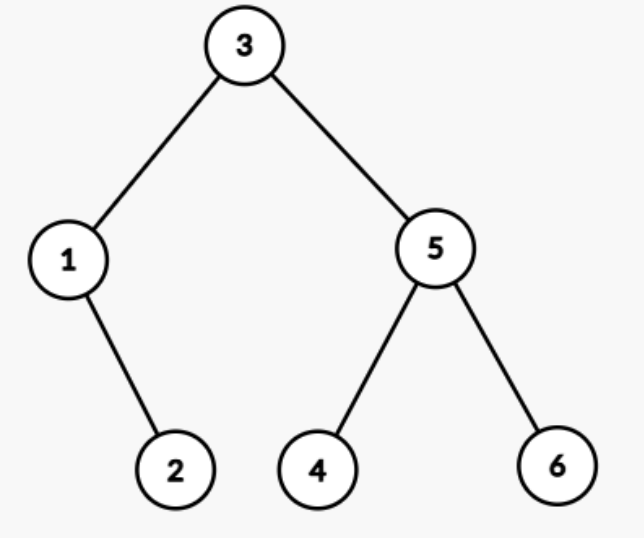


3.

插入2之前：



插入2之后：



4.

(1)

0	1	2	3	4	5	6	7	8	9	10	11	12	
44	1	12	23	13	5	48		19	41	21			

(2)

$(1+1+1+2+3+3+2+1+3+1)/10=1.8$

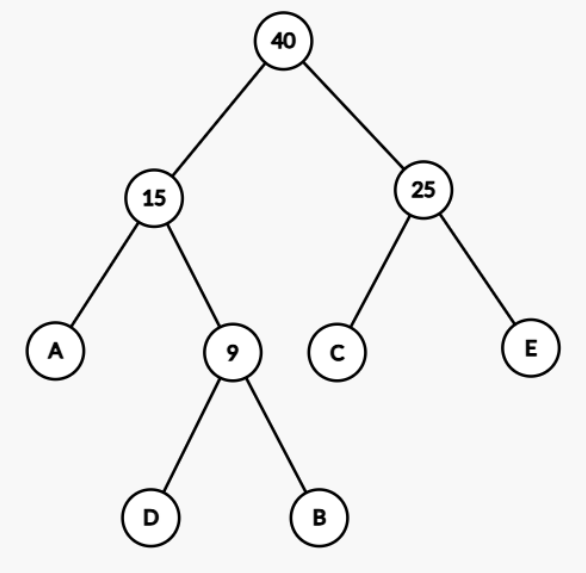
(3)

7

四、综合题

1.

(1)



(2)
A : 00
B : 011
C : 10
D : 010
E : 11

(3)
$(2*6+3*5+2*11+3*4+2*14)/40 = 2.225$

(4)
$2.225/3 = 74.2\%$

2.

$A^{(1)}$

$$\begin{bmatrix} 0 & 10 & \infty & 30 & 100 \\ \infty & 0 & 50 & \infty & \infty \\ \infty & \infty & 0 & \infty & 10 \\ \infty & \infty & 20 & 0 & 60 \\ \infty & \infty & \infty & \infty & 0 \end{bmatrix}$$

$A^{(2)}$

$$\begin{bmatrix} 0 & 10 & 60 & 30 & 100 \\ \infty & 0 & 50 & \infty & \infty \\ \infty & \infty & 0 & \infty & 10 \\ \infty & \infty & 20 & 0 & 60 \\ \infty & \infty & \infty & \infty & 0 \end{bmatrix}$$

$A^{(3)}$

$$\begin{bmatrix} 0 & 10 & 60 & 30 & 70 \\ \infty & 0 & 50 & \infty & 60 \\ \infty & \infty & 0 & \infty & 10 \\ \infty & \infty & 20 & 0 & 30 \\ \infty & \infty & \infty & \infty & 0 \end{bmatrix}$$

$A^{(4)}$

$$\begin{bmatrix} 0 & 10 & 50 & 30 & 60 \\ \infty & 0 & 50 & \infty & 60 \\ \infty & \infty & 0 & \infty & 10 \\ \infty & \infty & 20 & 0 & 30 \\ \infty & \infty & \infty & \infty & 0 \end{bmatrix}$$

$A^{(5)}$

$$\begin{bmatrix} 0 & 10 & 50 & 30 & 60 \\ \infty & 0 & 50 & \infty & 60 \\ \infty & \infty & 0 & \infty & 10 \\ \infty & \infty & 20 & 0 & 30 \\ \infty & \infty & \infty & \infty & 0 \end{bmatrix}$$

3.

(1) $6, 32, 38, 5, 21, 30, 26, 20$
(2) $21, 6, 26, 5, 32, 30, 38, 20$
(3) $5, 6, 20, 26, 21, 30, 32, 28$
(4) $5, 6, 32, 38, 20, 21, 26, 30$
(5) $38, 21, 32, 20, 6, 30, 26, 5$

五、程序题

1.

`p != NULL`

`break`

`p->data != q->data`

`p->next = q->next`

`delete q`

2.

`root == NULL`

`r == 0 || root->data <= max`

`root->data`

`root->rch, max`

3.

`pos > 0`

`i < bound`

`list[i] > list[i+1]`

`list[i+1]`

`list[i+1] = t`

4.

`i >= 0 && j >= 0`

`C[k++] = B[j--]`

`C[k++] = A[i--]`

`C[k++] = A[i--]`

`j >= 0`

`C[k++] = B[j--]`

5.

`R = NULL`

`R->lch == NULL && R->rch == NULL`

`Countleaf(R->lch)`

`Countleaf(R->rch)`

`n + m`