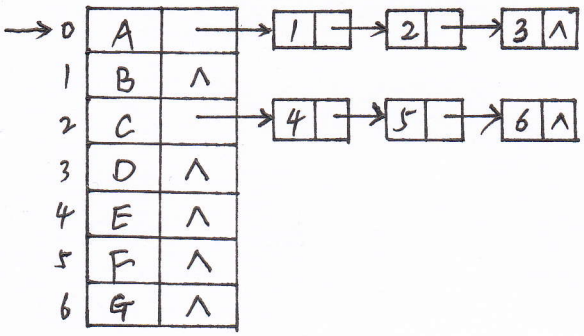
Chapter 6 Exercises Answer

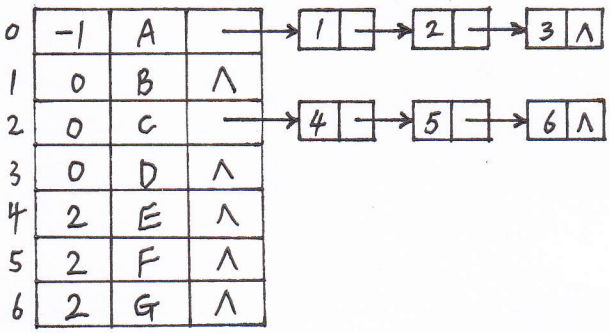
1. Parent representation

0	A	-1
1	B	0
2	C	0
3	D	0
4	E	2
5	F	2
6	G	2

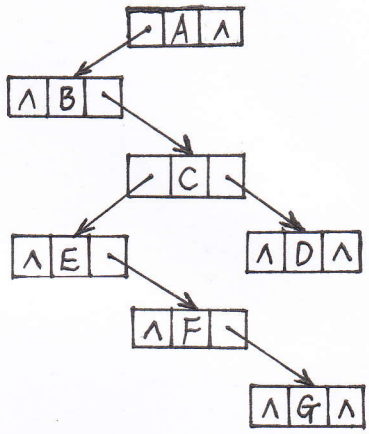
Child representation



Child-parent representation



Child-Sibling representation



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2. Answer: n_0 represents the number of nodes with degree 0, n represents the total number of nodes in the tree.

Total number of nodes: $n = n_0 + n_1 + n_2 + \cdots + n_k$.

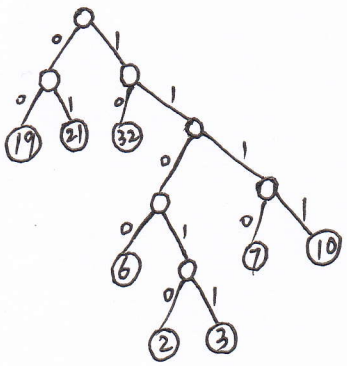
Suppose that the number of brandes is B, then $B + 1 = n$.

$$B = 1 \times n_1 + 2 \times n_2 + \cdots + k \times n_k$$

$$n_0 + n_1 + n_2 + \cdots + n_k = 1 \times n_1 + 2 \times n_2 + \cdots + k \times n_k + 1$$

$$n_0 = (2-1)n_2 + (3-1)n_3 + \cdots + (k-1)n_k + 1 = 1 + \sum_{i=2}^{k} (i-1)n_i$$

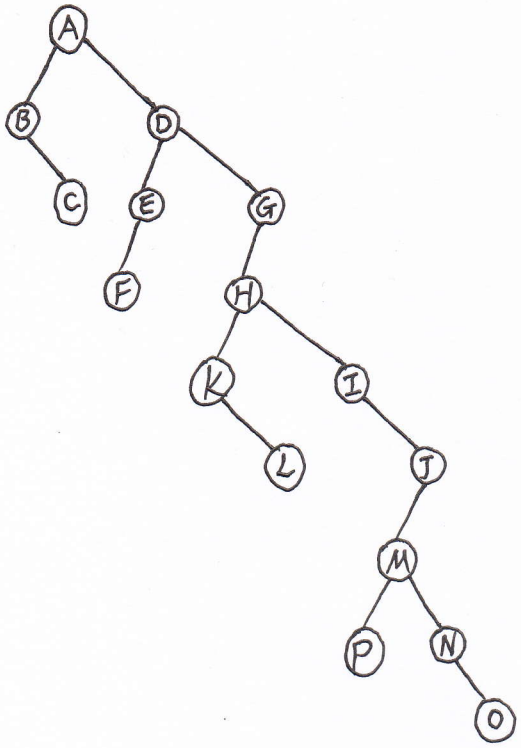
3.



A: 1110, B: 00, C: 11010, D: 1100

E: 10, F: 11011, G: 01, H: 1111

4.



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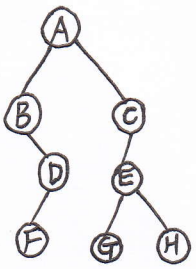
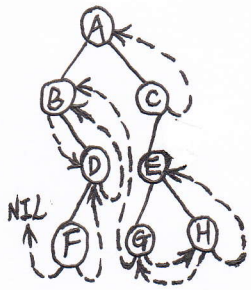
5. (1)



(2)



(3)