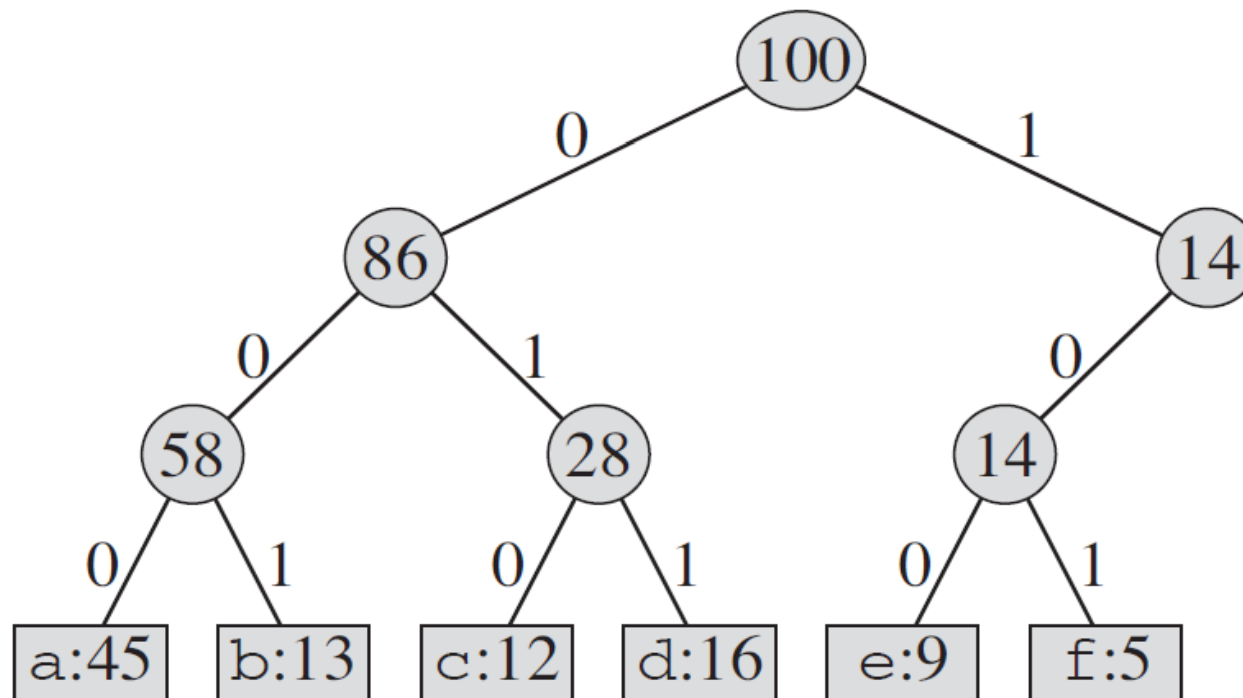


روش حرिवانه

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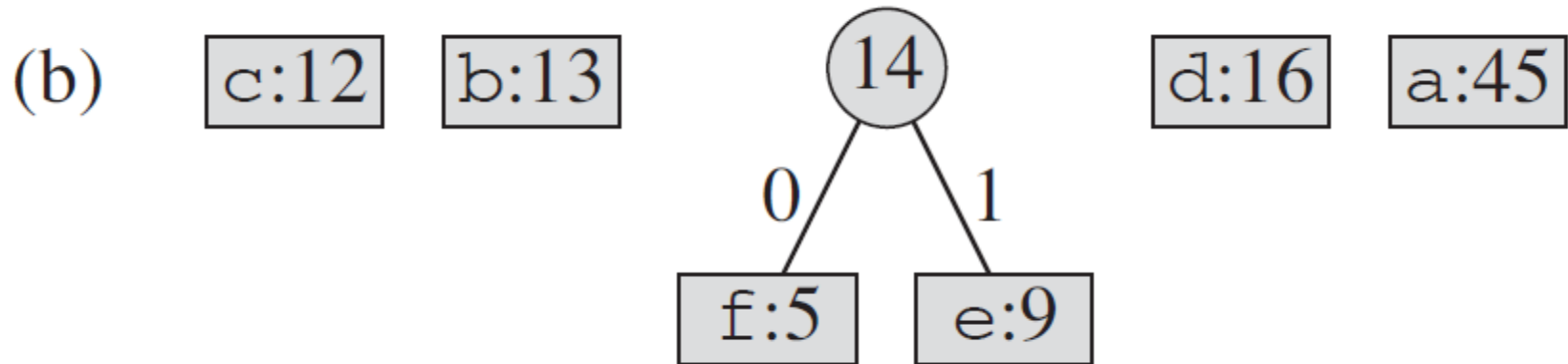
کدگذاری هافمن

	a	b	c	d	e	f
Frequency (in thousands)	45	13	12	16	9	5
Fixed-length codeword	000	001	010	011	100	101

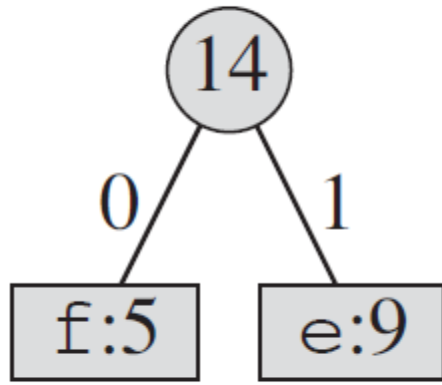


حل مسئله

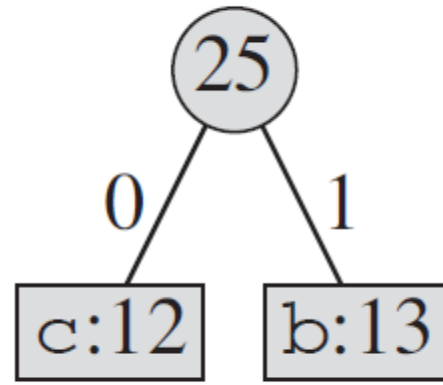
(a) f:5 e:9 c:12 b:13 d:16 a:45



(c)

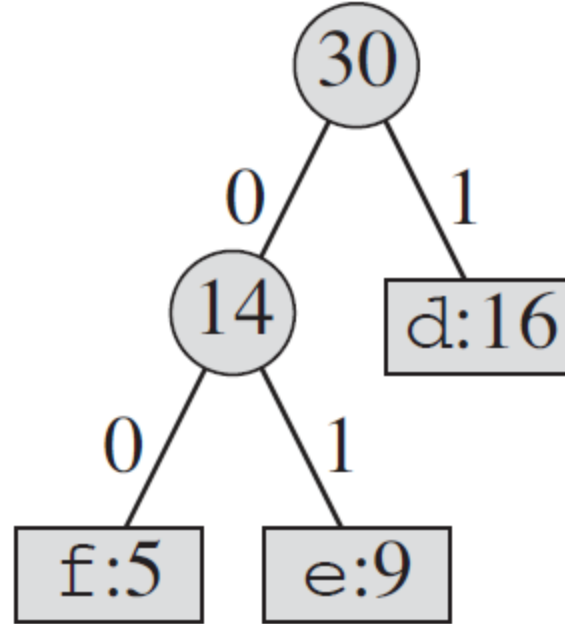
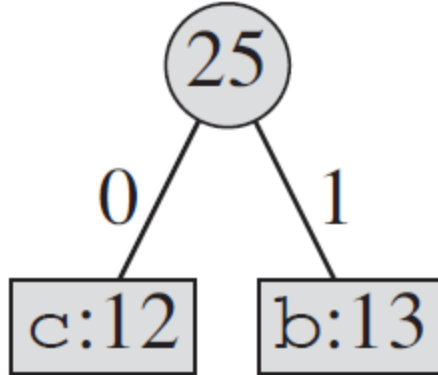


d:16



a:45

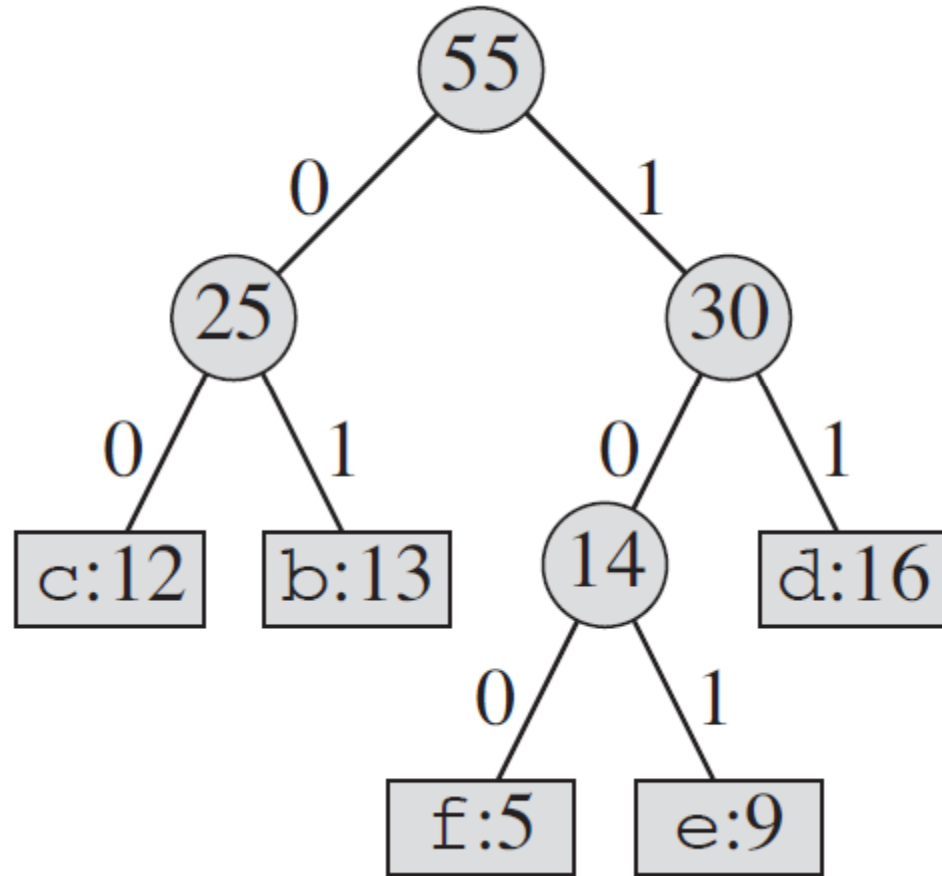
(d)



a:45

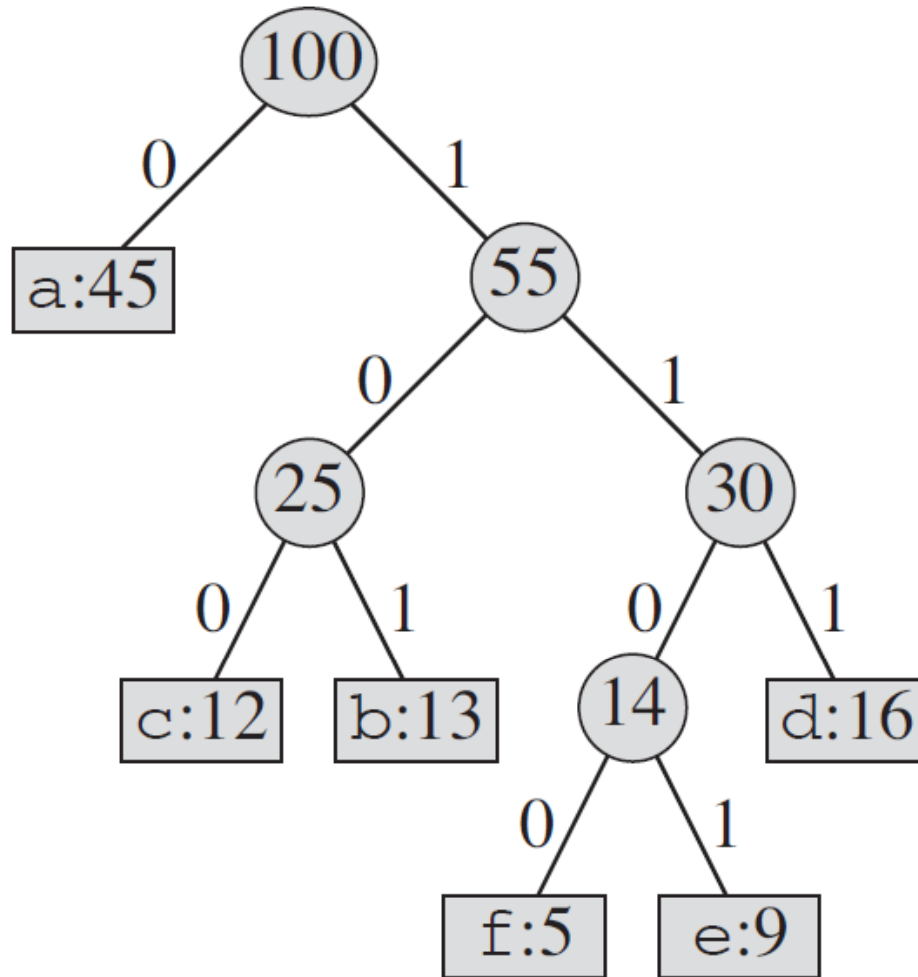
(e)

a:45



درخت نهایی

(f)



	a	b	c	d	e	f
Frequency (in thousands)	45	13	12	16	9	5
Fixed-length codeword	000	001	010	011	100	101
Variable-length codeword	0	101	100	111	1101	1100

محاسبه صرفه جویی

	a	b	c	d	e	f		
Frequency (in thousands)	45	13	12	16	9	5		
Codeword Length	8	8	8	8	8	8		
Freq. × Length	360	104	96	128	72	40	800	
	a	b	c	d	e	f		
Variable-length codeword	0	101	100	111	1101	1100		
Codeword Length	1	3	3	3	4	4		
Freq. × Length	45	39	36	48	36	20	224	
صرفه جویی	576							
درصد استفاده	$(224/800)*100 = 28$							
درصد صرفه جویی نسبت به کدهای با طول ثابت	$100 - 28 = 72$							



محاسبه صرفه جویی

	a	b	c	d	e	f		
Frequency (in thousands)	45	13	12	16	9	5		
Fixed-Length codeword	000	001	010	011	100	101		
Codeword Length	3	3	3	3	3	3		
Freq. × Length	135	39	36	48	27	15	300	
	a	b	c	d	e	f		
Variable-length codeword	0	101	100	111	1101	1100		
Codeword Length	1	3	3	3	4	4		
Freq. × Length	45	39	36	48	36	20	224	
صرفه جویی	76							
درصد استفاده	$(224/300)*100 = 74.67$							
درصد صرفه جویی نسبت به کدهای با طول ثابت	$100 - 74.66 = 25.33$							

