Bounds on $K(n, R)$, $R = 1, 2, 3$
(lower and upper bounds on the size of binary optimal covering codes)

n	$R = 1$	$R = 2$	$R = 3$
1	$\mathbf{1}^{1}$		
2	$\mathbf{2}^{2}$	$\mathbf{1}^{1}$	
3	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$	$\mathbf{1}^{1}$
4	b $\mathbf{4}^{2}$	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$
5	b $\mathbf{7}^{1}$ b	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$
6	c $\mathbf{12}^{2}$ c	g $\mathbf{4}^{4}$	$\mathbf{2}^{2}$
7	h $\mathbf{16}^{1}$ h	g $\mathbf{7}^{3}$ g	$\mathbf{2}^{1}$
8	c $\mathbf{32}^{10}$	z $\mathbf{12}^{277}$ g	g $\mathbf{4}^{6}$
9	o 62 j	p $\mathbf{16}^{4}$ y	g $\mathbf{7}^{8}$ g
10	i 107–120 j	r 24–30 w	j $\mathbf{12}^{11481}$ g
11	z 180–192 g	r 37–44 x	u 15–16 y
12	f 342–380 j	r 62–78 o	t 18–28 s
13	g 598–704 p	m 97–128 y	n 28–42 s
14	l 1172–1408	x 159–248 z	n 44–64 y
15	h $\mathbf{2048}^{5983}$ h	r 310–384 v	n 70–112 x
16	f 4096	s 512–768	r 115–192 t
17	y 7419–8192	g 859–1536	r 187–320 v
18	f 14564–16384	s 1702–2944 v	t 316–512 k
19	r 26309–31744 n	y 2898–4096 y	d 513–1024
20	r 52618–63488	r 5330–8192	y 892–2048
21	g 96125–122880 u	y 9900–14336 d	m 1475–3072 v
22	f 190651–245760	r 17336–24576 d	r 2544–4096
23	y 352827–393216 u	r 30686–32768 d	h $\mathbf{4096}^{1}$ h
24	f 699051–786432	y 60381–65536	d 8128–8192
25	g 1298238–1556480 v	y 107218–131072	s 13896–16384
26	f 2581111–3112960	g 191229–262144	r 24256–32768
27	v 4794174–5767168 v	r 380496–524288	r 40683–65536
28	r 9587084–11534336	y 683980–1048576	d 80835–131072
29	y 17997161–23068672	r 1231554–2097152	m 140567–262144
30	f 35791395–46137344	r 2461892–4194304	m 248218–524288
31	h 67108864 h	y 4464944–8388480 x	r 443515–524288 d
32	f 134217728	r 8170308–16776960	y 855613–1048576
33	g 253523901–268435456	y 16210701–32505856 v	d 1516208–2097152

Bounds on $K(n, R)$, $R = 4, 5, 6$
(lower and upper bounds on the size of binary optimal covering codes)

n	$R = 4$	$R = 5$	$R = 6$
4	$\mathbf{1}^{1}$		
5	$\mathbf{2}^{5}$	$\mathbf{1}^{1}$	
6	$\mathbf{2}^{4}$	$\mathbf{2}^{6}$	$\mathbf{1}^{1}$
7	$\mathbf{2}^{3}$	$\mathbf{2}^{5}$	$\mathbf{2}^{7}$
8	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$	$\mathbf{2}^{6}$
9	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$	$\mathbf{2}^{5}$
10	g $\mathbf{4}^{9}$	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$
11	g $\mathbf{7}^{17}$ g	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$
12	j 11–12 g	g $\mathbf{4}^{12}$	$\mathbf{2}^{2}$
13	w 12–16 y	g $\mathbf{7}^{33}$ g	$\mathbf{2}^{1}$
14	d 16–28 s	u 10–12 g	g $\mathbf{4}^{16}$
15	t 22–32 v	w 12–16 y	g $\mathbf{7}^{58}$ g
16	t 33–64	m 13–28 l	q 9–12 g
17	n 52–112 x	t 19–32 v	w 11–16 y
18	s 83–192 l	t 27–64	r 12–28 l
19	n 128–256 v	t 40–64 y	t 16–32 v
20	n 208–512	n 62–128	d 24–64
21	n 336–896 x	n 95–256	n 33–64 y
22	n 553–1536 v	n 150–512	n 49–128
23	r 912–2048 v	n 235–640 v	n 73–224 f
24	n 1505–4096	n 376–1024 v	n 113–384 f
25	r 2558–4096 y	n 608–2048	n 172–512 y
26	r 4273–8192	n 981–4096	d 275–1024
27	r 7181–14336 f	n 1601–4096 y	n 419–1984 v
28	r 12482–24576 f	r 2646–8192	n 663–3584 v
29	n 21098–32768 y	r 4355–14336 f	n 1068–4096 y
30	y 38067–65536	n 7307–24576 f	n 1727–8192
31	m 64680–126976 v	n 12220–32768 y	n 2808–14336 f
32	y 110467–245760 m	n 20556–61440 m	n 4597–24576 f
33	r 193704–393216 f	n 34731–90112 v	n 7476–32768 y

Bounds on $K(n, R)$, $R = 7, 8, 9, 10$
(lower and upper bounds on the size of binary optimal covering codes)

n	$R = 7$	$R = 8$	$R = 9$	$R = 10$
7	$\mathbf{1}^{1}$			
8	$\mathbf{2}^{8}$	$\mathbf{1}^{1}$		
9	$\mathbf{2}^{7}$	$\mathbf{2}^{9}$	$\mathbf{1}^{1}$	
10	$\mathbf{2}^{6}$	$\mathbf{2}^{8}$	$\mathbf{2}^{10}$	$\mathbf{1}^{1}$
11	$\mathbf{2}^{5}$	$\mathbf{2}^{7}$	$\mathbf{2}^{9}$	$\mathbf{2}^{11}$
12	$\mathbf{2}^{4}$	$\mathbf{2}^{6}$	$\mathbf{2}^{8}$	$\mathbf{2}^{10}$
13	$\mathbf{2}^{3}$	$\mathbf{2}^{5}$	$\mathbf{2}^{7}$	$\mathbf{2}^{9}$
14	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$	$\mathbf{2}^{6}$	$\mathbf{2}^{8}$
15	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$	$\mathbf{2}^{5}$	$\mathbf{2}^{7}$
16	g $\mathbf{4}^{20}$	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$	$\mathbf{2}^{6}$
17	g $\mathbf{7}^{97}$ g	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$	$\mathbf{2}^{5}$
18	q 9–12 g	g $\mathbf{4}^{25}$	$\mathbf{2}^{2}$	$\mathbf{2}^{4}$
19	w 10–16 y	g $\mathbf{7}^{153}$ g	$\mathbf{2}^{1}$	$\mathbf{2}^{3}$
20	w 12–28 l	q 9–12 g	g $\mathbf{4}^{30}$	$\mathbf{2}^{2}$
21	t 14–32 v	w 10–16 y	g $\mathbf{7}^{233}$ g	$\mathbf{2}^{1}$
22	n 20–64	w 11–28 l	q 9–12 g	g $\mathbf{4}^{36}$
23	n 29–64 y	t 13–32 v	9–16 y	g $\mathbf{7}^{342}$ g
24	n 41–128	t 18–64	w 10–28 l	q 9–12 g
25	n 60–224 f	n 25–64 y	t 12–32 v	9–16 y
26	n 88–384 f	d 36–128	t 16–56 v	w 10–28 l
27	n 132–512 y	n 50–224 f	n 22–64 y	t 11–32 v
28	n 202–960 m	n 73–384 f	m 30–128	r 15–56 v
29	n 311–1408 v	n 106–512 y	d 43–224 f	t 19–64 y
30	d 486–2048 y	n 158–896 v	n 61–384 f	n 27–128
31	n 743–2048 y	n 238–1344 v	n 88–512 y	m 37–224 f
32	n 1179–4096	d 369–2048 y	n 127–896 v	d 53–384 f
33	n 1878–8192	n 557–2048 y	n 188–1024 v	n 74–512 y

Key to the tables for $K(n, R)$, lower bounds

unmarked	trivial
b	(Taussky-Todd, 1948)
c	(Stanton–Kalbfleisch, 1968 and 1969)
d	(Bhandari–Chanduka–Lal, 1998)
f	(van Wee, 1988)
g	(Cohen–Lobstein–Sloane, 1986)
h	perfect code
i	(Bertolo–Östergård–Weakly, 2004)
j	(Östergård, 2005)
l	(Habsieger, 1997)
m	(Honkala, 1991)
n	(Li–Chen, 1994)
o	(Östergård–Blass, 2001)
p	(Östergård–Weakly, 2000)
q	(Kéri–Östergård, 2003–2006)
r	(Habsieger–Plagne, 2000)
s	(Zhang, 1991)
t	(Zhang–Lo, 1992)
u	(Kéri, 2006)
v	(Plagne, 2008)
w	(Kéri, 2009)
x	(Lang–Quistorff–Schneider, 2006)
y	(Haas, 2007–2008)
z	(Blass–Litsyn, 1998 and 1999)

Key to the tables for $K(n, R)$, upper bounds

unmarked	trivial
b	(Taussky-Todd, 1948)
c	(Stanton–Kalbfleisch, 1968)
d	(Etzion–Greenberg, 1993)
f	(van Wee, 1988)
g	(Cohen–Lobstein–Sloane, 1986)
h	perfect code
j	(Wille, 1990 and 1996)
k	(Brualdi–Pless, 1990)
l	(Cohen–Honkala–Litsyn–Lobstein, 1997)
m	(Honkala, 1991)
n	(Li–Chen, 1994)
o	(Östergård, 1994)
p	(Östergård–Weakly, 1999)
s	(Hämäläinen–Honkala–Kaikkonen–Litsyn, 1993)
t	(Hämäläinen–Honkala–Litsyn–Östergård, 1995)
u	(Mollard, 1981)
v	(Östergård–Kaikkonen, 1998)
w	(Hämäläinen–Rankinen, 1991)
x	(Honkala–Hämäläinen, 1988)
y	(Graham–Sloane, 1985)
z	(Bertolo–Di Pasquale–Santisi, 2006)