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A FAMILY OF LARGE SET OF SIZE NINE

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ABSTRACT. We investigate the existence of some large sets of size nine. The large set $LS[9](2, 5, 29)$ is constructed and existence of the family $LS[9](2, 5, 27l + j)$ for $l \geq 1$, $2 \leq j < 5$ are proved.

Keywords: Large set, Kramer-Mesner matrix, block design.

MSC(2010): Primary: 05B05; Secondary: 05E20.

1. Introduction

Let t, k, v and λ be positive integers such that $t \leq k \leq v$. Let X be a set of size v (or a v -set called point set) and $P_i(X)$, $0 < i \leq t$, denotes the set of all i -subsets of X . A t - (v, k, λ) design (or in short a t -design) is a collection D of k -subsets (blocks) of a v -set X such that every t -subset of X is contained in exactly λ blocks [1]. A t -design is simple if no two blocks are identical. Here, we consider only simple designs. We recall some necessary preliminaries from [6]. A large set of t - (v, k, λ) designs, denoted by $LS[N](t, k, v)$, is a partition of the $P_k(X)$ into N disjoint t - (v, k, λ) designs and hence $N = \binom{v-t}{k-t} / \lambda$. Consequently a necessary condition for the existence of an $LS[N](t, k, v)$ is that

$$N \mid \binom{v-i}{k-i}, \quad 0 \leq i \leq t. \quad (1.1)$$

This necessary condition (1.1) is not always sufficient, for in 1850, Cayley showed that it is possible to have two disjoint 2- $(7, 3, 1)$ designs and no more [3]. So there are no $LS[5](2, 3, 7)$ and $LS[5](3, 4, 8)$, while $5 \mid \binom{7-i}{3-i}$

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$$, 0 \leq i \leq 2 \text{ and } 5 \mid \binom{8-i}{4-i}, 0 \leq i \leq 3.$$

Let S_v be the group of all permutations on X , where as defined above X is a v -set. Let $\sigma \in S_v, x \in X, B \in P_k(X)$ and $\beta \subseteq P_k(X)$. We denote by x^σ, B^σ and β^σ the images under σ of x, B and β , respectively. If $\beta^\sigma = \beta$, then σ is called an automorphism of β . If G is a subgroup of S_v such that $\beta^\sigma = \beta$ for every $\sigma \in G$, we say that β is G -invariant. The set of all automorphisms of β forms a subgroup of S_v . We call β rigid if its automorphism group is trivial.

In order to define the same concept for large sets, consider the set $D = \{\beta_i\}_{i=1}^N$, such that each β_i is a t - (v, k, λ) design and $\beta_i \cap \beta_j = \emptyset$ for all $i \neq j$. A permutation $\sigma \in S_v$ is said to be an automorphism of D if $D^\sigma = D$, that is, $\beta_i^\sigma \in D$, for each $\beta_i \in D$. The set of all automorphisms of D is, of course, a subgroup of S_v denoted by $AutD$. If G is a subgroup of $AutD$, we say that D is G -invariant. Notice that a G -invariant large set may contain designs which are not G -invariant by themselves [5].

Suppose that the block set β of a design is G -invariant for some abelian group G . Then one needs only list part of the blocks, called *starter blocks*, in order to obtain β . In other words starter blocks is a set of orbit representatives in β under the action of G .

Let G be a subgroup of S_v and let T_1, T_2, \dots, T_s and K_1, K_2, \dots, K_r (for positive integers r and s) be the orbits of $P_t(X)$ and $P_k(X)$ under the action of G , respectively. The Kramer-Mesner matrix is the $s \times r$ matrix $A_{t,k}^v(G)$ whose (i, j) -th entry is $|\{k \in K_j ; T \subseteq k\}|$, where T is any representative in T_i . The following theorem, due to Kramer and Mesner gives more details [9].

Theorem 1.1. *There exists a G -invariant t - (v, k, λ) design β if and only if there exists a vector $u \in \{0, 1\}^r$ satisfying the equation $A_{t,k}^v(G)u = \lambda J$, where J is the s -dimensional all one vector.*

Remark 1.2. *One may also adapt the same method for finding large sets. We pick up one from the set of solutions of u and remove the corresponding columns from $A_{t,k}^v(G)$. The resulting matrix $A'_{t,k}(G)$ is used in a similar way to find designs via the equation $A'_{t,k}(G)u' = \lambda J$. We repeat the procedure until all orbits on k -subsets are used [7].*

Notation. Let N, t and k be some positive integers such that $t \leq k$. The set of all v for which an $LS[N](t, k, v)$ exists, is denoted by $A[N](t, k)$. The set of all v which satisfy the necessary conditions (1.1) is denoted by $B[N](t, k)$ [8].

2. Large sets of size 9 with $t = 2$ and $k = 5$

In this section first we state the necessary condition (1.1), in terms of some congruence relations. Then we prove the existence of a family of large sets. Let p be a prime number and k_p be the smallest power of p such that $k < p^{k_p}$ [13]. The following theorem helps us to identify the existence of large sets in size 9 and $t = 2$ and $k = 5$.

Theorem 2.1. [13] *Let p^α be a prime power. Then $v \in B[p^\alpha](t, k)$ if and only if one of the following conditions hold:*

- i:** $v \equiv t, \dots, k - 1 \pmod{p^{k_p + \alpha - 1}}$,
- ii:** $v \equiv v_0 \pmod{p^{k_p + \alpha - 1}}$, $k < v_0 < p^{k_p + \alpha - 1}$ and $v_0 \in B[p^\alpha](t, k)$.

This theorem has in particular the following easy conclusion.

Lemma 2.2. *Let $v > 7$ then $v \in B[9](2, 5)$ if and only if $v \equiv 2, 3, 4 \pmod{27}$.*

Proof. In this case $k_p = 2$ and it is easy to show that for $6 < v_0 < 27$ we have $9 \nmid \binom{v-i}{5-i}$, where $i = 0, 1, 2$. Therefore by Theorem 2.1, $v \in B[9](2, 5)$ if and only if $v \equiv 2, 3, 4 \pmod{27}$. \square

The following theorem due to Khosrovshahi et al. [7], presents a recursive method and provides an important mechanism for constructing families of large sets from small cases.

Theorem 2.3. [7] *If there exist $LS[N](t, i, v)$ for all $t + 1 \leq i \leq k$, then there exist $LS[N](t, i, l(v - t) + j)$ for all $l \geq 1$, $t + 1 \leq i \leq k$ and $t \leq j < i$.*

A t - (v, k, λ) design D is said to be *cyclic* if it has an automorphism σ which is a cycle of order v on the point set X . If D is cyclic it is clear that we can regard the points of D as the elements of the additive cyclic group Z_v , in such a way that σ is simply the cycle $x \rightarrow x + 1$. In this case, Z_v is a subgroup of $Aut(D)$ [2]. Now, let $N(t, v, k, \lambda)$ be the maximum possible number of mutually disjoint cyclic t - (v, k, λ) designs. We give a lower bound for $N(2, 29, 5, 5)$ and use the bound to produce an $LS[9](2, 5, 29)$. First note that:

Remark 2.4. Consider Theorem 1.1 and Remark 1.2 above and let B be a matrix of size $s \times q$, where $q \leq r$ and all q columns of B are chosen arbitrarily from r columns of $A_{t,k}^v(G)$, then any solution of matrix equation $Bv = \lambda J$ easily yields to a solution u of Kramer-Mesner Matrix equation $A_{t,k}^v(G)u = \lambda J$. Just let u be the zero-one vector each of its entry correspond to each column of $A_{t,k}^v(G)$ such that for all columns in B the vector u has the same entry as v and corresponding for the other columns has zero entry.

Within the above Remark we can give:

Theorem 2.5. $565 \leq N(2, 29, 5, 5) \leq 585$.

Proof. Let $X = \{0, 1, \dots, 9, a, b, \dots, s\}$ and let the permutation group G of order 29 be generated by the cycle $(0 \ 1 \ \dots \ 9 \ a \ b \ \dots \ s)$. In this case $A_{2,5}^{29}(G)$ is of size 14×4095 . Via a computer program we could find 565 disjoint binary solutions for the equation $A_{2,5}^{29}(G)u = 5J$. The method is based on the following analysis. The matrix $A_{2,5}^{29}(G)$ has 2002 repeated and 91 non-repeated columns. By Remark 2.4, the matrix equation built with these 2002 repeated columns gives 260 designs with $\lambda = 5$. There are two families of these solutions, so there are 520 solutions for the equation $A_{2,5}^{29}(G)u = 5J$. Deleting the corresponding columns in $A_{2,5}^{29}(G)$ gives a matrix of size 14×455 , where again by Remark 2.4 we have to find 45 other designs. To sum up, by Theorem 1.1, all these 565 solutions correspond to distinct 2-(29, 5, 5) designs. In Table1 we exhibit all 565 starter blocks of these designs in columns titled D_i , $1 \leq i \leq 565$. When G acts on all rows (blocks) of each column D_i , then a 2-(29, 5, 5) design is produced. \square

In the following we use the above theorem to obtain a new result on large sets of size 9.

Theorem 2.6. $B[9](2, 5) = A[9](2, 5)$.

Proof. By Theorem 2.1 and 2.3 and the existence of $LS[9](2, 3, 29)$ (see[10, 11, 12]) and $LS[9](2, 4, 29)$ (see[4]), it suffices to establish the existence of $LS[9](2, 5, 29)$. All the 520 designs given in the proof of Theorem 2.5 can be partitioned into eight disjoint sets β_1, \dots, β_8 , each consisting of 65 blocks of a cyclic 2-(29, 5, 5) designs, each of them is a cyclic 2-(29, 5, 325) design. Since $(X, P_5(X))$ is a cyclic 2-(29, 5, 2925) design,

the set of blocks $P_5(X) \setminus \bigcup_{i=1}^8 \beta_i$, called β_9 , is a cyclic 2-(29,5,325) design. Now the set $\{\beta_1, \dots, \beta_9\}$ is an $LS[9](2, 5, 29)$. This completes the proof. \square

Based on Theorem 2.3 and the existence of three large sets $LS[9](2, i, 29)$ for $3 \leq i \leq 5$, given in above Theorem and in [4],[13] we may give the following main result.

Corollary 2.7. *The family of $LS[9](2, 5, 27l+j)$ for $l \geq 1$ and $2 \leq j < 5$ exist.*

Table 1. Starter blocks of 565 distinct 2-(29,5,5)designs

D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁
01235	01236	01237	01238	01239	0123a	0123b	0123c	0123d	0123e	0123f
0129i	0127e	0125f	0125c	0124i	0125a	0124e	01259	0125b	0125d	0125l
029ek	02adl	029hk	028hl	02aej	028em	028gm	028gl	025bi	026ao	026am
037dn	02aek	02agk	02afk	037ci	02bfj	037cn	029fk	028fn	029fl	028dn
037fj	037ek	037ck	036ek	037dm	036fj	037di	037ch	037cj	036cm	036bk
037fl	037fk	037dl	037gk	037fn	037ej	037do	037fi	037fo	037cl	037cm
05afl	049ek	05agm	04afm	05agl	05bgm	049el	04agn	049fj	049em	04bgm
D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂
01245	01246	01247	01248	01249	0124a	0124b	0124c	0124h	0124k	0124n
012ah	0127i	0125g	0125e	0124d	0124g	0124f	0124j	0124l	0124m	0125h
028dj	018dl	019ck	016dj	018di	017cl	018el	016cl	017dl	016el	014ak
02afl	02ahk	028fk	029dl	028ek	028di	027dj	027gn	027cm	027ck	027fk
036ch	036ei	029el	029ej	036ej	037co	036bn	036cj	036bl	036di	029hl
037fm	037dk	037dj	036dl	037em	037el	037bj	037eo	037dp	037dh	036bh
049dk	049en	048dj	039ei	049dj	039dj	049eo	048di	049fk	049fl	049fm
D ₂₃	D ₂₄	D ₂₅	D ₂₆	D ₂₇	D ₂₈	D ₂₉	D ₃₀	D ₃₁	D ₃₂	D ₃₃
0124o	0124p	0124q	01256	01257	01258	0125m	0125o	0125p	01267	01268
0125i	0125j	0127h	0126h	0126d	0125k	0125n	01269	0126b	0126c	0126e
014ck	018dj	018bj	027dl	016ek	015ch	014bh	017fi	018fl	029gj	014ci
027hl	029fj	026em	028gk	02adk	028el	028fl	028fj	027ei	02afi	029cm
028dk	029gl	028ej	02bej	02ael	029fi	028hk	02agj	028gj	02bek	02bfk
036dk	036cl	037gj	037en	036fi	029il	02bei	02bgj	02adj	037eh	036bj
049fn	037gl	049fo	03adk	048dk	048ej	049ej	049gk	037hk	048dl	037hm
D ₃₄	D ₃₅	D ₃₆	D ₃₇	D ₃₈	D ₃₉	D ₄₀	D ₄₁	D ₄₂	D ₄₃	D ₄₄
0126a	0126g	0126j	0126l	0126n	01278	01279	0127b	0127d	0127g	0127l
0126f	0126i	0126k	0126m	0126o	0127j	0127a	0127c	0127f	0127k	0127m
0138i	0136l	0136g	0138j	018gk	025dg	015di	0137h	0137k	0136c	0139j
028fi	027ag	027em	026cj	025fi	026fk	026gj	025dl	029cj	027cl	025gj
029ci	029cl	028cl	027gj	029ck	02afj	026gl	027gk	02aei	02cfi	026bi
036al	037bl	036bi	036eh	02aeh	037bf	037ei	036ck	036be	037bm	036dh
049gl	049gm	037bk	048dm	039di	039ej	039ck	037hl	049di	048ck	048ch

Table 1. Continue

D ₄₅	D ₄₆	D ₄₇	D ₄₈	D ₄₉	D ₅₀	D ₅₁	D ₅₂	D ₅₃	D ₅₄	D ₅₅
0127n	01289	0128c	0128e	0128f	0128g	0128k	0128m	0129a	0129c	0129f
0128a	0128b	0128d	0128h	0128i	0128j	0128l	0129b	0129d	0129e	0129j
014di	025ch	0136f	0136j	0136b	0136e	0136h	014ei	025af	0136d	0136a
025fj	026fi	025dk	025ak	025ej	026bg	025fk	025gl	025ip	026hl	025ei
029di	029ei	028dh	026aj	027bk	027bj	026eo	026bh	026ej	027bg	027ci
036ai	036bg	037aj	037ep	036cg	036ak	036ah	036an	036ci	036bm	036bf
038ci	048ei	048dn	038ch	048cj	037cg	048dh	037jo	037im	048ek	048el
D ₅₆	D ₅₇	D ₅₈	D ₅₉	D ₆₀	D ₆₁	D ₆₂	D ₆₃	D ₆₄	D ₆₅	D ₆₆
0129g	0129h	012ab	012ac	012ad	012ai	012aj	012ak	012bc	012bd	012bi
0129k	0129l	012ae	012af	012ag	012be	012bf	012bg	012cg	012bh	012ce
0136k	013dh	0258e	0137c	0136n	0136o	0137d	0147n	025kp	0149o	0158o
025io	026bp	025in	025hn	025aj	026ah	027dh	0269e	027bn	0258g	0259o
026ch	027di	026dh	036dj	026di	027hm	027fo	026ei	027fn	027eo	026fl
037bh	036af	037af	037bp	037cp	037bg	0369e	027in	0369d	037ag	037bn
038cg	036ao	049gn	049go	048em	037hn	037bo	037cf	037ho	048ci	038bh
D ₆₇	D ₆₈	D ₆₉	D ₇₀	D ₇₁	D ₇₂	D ₇₃	D ₇₄	D ₇₅	D ₇₆	D ₇₇
012bj	012cd	012ch	012de	012df	012dg	012dh	012ef	012eg	01346	01347
012cf	01358	012ci	01359	01349	01348	0134a	0135b	0135a	0138d	0136i
0147c	015ai	0148l	015ag	015al	015bk	0149j	016ao	015an	018hk	015aj
025ap	026gm	025ao	026ck	027cj	026co	026cm	025am	018cj	019ek	018ek
026fn	027fl	0269f	029em	028en	028ch	026ho	028ck	026cl	027ek	027fj
027bo	037fp	028dm	036am	036aj	029fm	028hm	037ai	0369h	028ei	028dl
037gm	039ci	036ae	038bi	037bi	038bj	038bg	037gn	037go	048fj	029gk
D ₇₈	D ₇₉	D ₈₀	D ₈₁	D ₈₂	D ₈₃	D ₈₄	D ₈₅	D ₈₆	D ₈₇	D ₈₈
0134b	0134d	0134f	0134g	01357	0135f	0135h	0135j	0135l	0135n	0135p
0134c	0134e	0135c	0135d	0135e	0135g	0135i	0135k	0135m	0135o	0137b
016ch	015ak	015bm	016bm	014ai	0137a	0137n	0136m	0137e	013ch	013bg
025fl	027do	019el	019fk	018fk	017ck	015cl	015em	016fk	017ek	017fk
027gm	027en	026bl	026bm	019gj	018cl	018bk	019gk	01adj	019fj	01agi
028cm	028bn	027hn	026en	039gl	039hm	038em	039el	038fl	038gk	039hk
048fk	048fl	037dg	037ah	04agl	04afl	04afn	04agm	04ahl	03ahl	04ahm
D ₈₉	D ₉₀	D ₉₁	D ₉₂	D ₉₃	D ₉₄	D ₉₅	D ₉₆	D ₉₇	D ₉₈	D ₉₉
0135q	0135r	01367	01368	01369	0136p	0136q	0136r	01378	0137q	0137r
0137f	0137g	0137i	0137j	01379	0137l	0137m	0137o	0137p	01389	0138a
0138h	0139i	0138e	0138f	015ei	0138g	013ah	018gi	015fh	013di	014ch
017hj	017fj	01aek	014dj	018gh	015ek	015ej	01aek	019hk	017gi	018fj
019dk	019dj	029hj	019hj	027hj	01bdi	018ej	01afh	028gi	027gl	019ej
03agl	039em	038hl	049hn	03ael	029dj	028ik	039gk	039ek	03bgk	026fj
049in	04bgl	049hm	049im	04afk	039hl	049hl	04aim	03afj	04ael	039fl
D ₁₀₀	D ₁₀₁	D ₁₀₂	D ₁₀₃	D ₁₀₄	D ₁₀₅	D ₁₀₆	D ₁₀₇	D ₁₀₈	D ₁₀₉	D ₁₁₀
0138b	0138l	0138n	0138p	0138r	0139b	0139g	0139l	0139n	0139q	013ab
0138c	0138m	0138o	0138q	0139a	0139e	0139h	0139m	0139o	0139r	013ae
0138k	0139c	0139d	013bf	013ek	0139f	0139k	0139p	013ad	013ej	013af
014ej	013ei	013dj	016ej	017ej	0159g	013fp	014bf	015bg	015ci	0149f
016fl	015hn	015cj	017gk	026hm	015cg	015jn	017dh	015cm	018hl	026in
026dj	027cg	026gk	028hj	038ei	025co	026jo	025gk	024dh	027el	027dn
026im	04aek	03b fk	039dk	048gk	03agk	038cj	027ch	038fj	049jn	037ko
D ₁₁₁	D ₁₁₂	D ₁₁₃	D ₁₁₄	D ₁₁₅	D ₁₁₆	D ₁₁₇	D ₁₁₈	D ₁₁₉	D ₁₂₀	D ₁₂₁
013ac	013aj	013ak	013an	013aq	013bc	013be	013bj	013bk	013bl	013bp
013ag	013al	013am	013ao	013ar	013bd	013bh	013bm	013bn	013bo	013bq
013ai	0148f	013fq	013ap	014bg	0147o	013bi	0146f	013eh	013cg	013cd
0158d	015eh	0159e	014cg	016bj	015gl	015ap	015dh	0157e	0157p	015ah
016cg	015ho	015gm	01cei	016dl	026bf	017dm	017en	015in	016fn	026ep
026af	025ag	026io	026bj	026ek	026gn	0259p	0259e	026ap	027eh	027dm
037io	0268e	028dg	038eo	029dh	038fm	027jn	025jp	038fo	037jn	038gn

Table 1. Continue

D₁₂₂	D₁₂₃	D₁₂₄	D₁₂₅	D₁₂₆	D₁₂₇	D₁₂₈	D₁₂₉	D₁₃₀	D₁₃₁	D₁₃₂
013br	013cf	013cj	013cl	013cm	013cq	013de	013df	013dg	013dn	013dr
013ce	013ci	013ck	013cn	013co	013cr	013dk	013dl	013dm	013do	013em
0148c	01459	013dq	013gq	013cp	0148e	013jo	013hn	013el	013dp	013en
015eo	015dn	015bp	0157m	013go	016bl	0148p	0148n	0157b	0148g	0159p
017dk	027bl	017fm	015fm	015bf	018dk	026go	015ao	0159n	015fn	016in
027bh	027ln	0268d	026cg	027bf	027dk	027bm	026do	026bn	0249k	026dl
038fn	039gm	038dh	038do	039fm	028cg	039fn	038cl	038hm	038en	03aek
D₁₃₃	D₁₃₄	D₁₃₅	D₁₃₆	D₁₃₇	D₁₃₈	D₁₃₉	D₁₄₀	D₁₄₁	D₁₄₂	D₁₄₃
013ef	013eg	013eq	013fg	013fh	013fi	013fj	013fo	013gi	013gj	013gm
013eo	013ep	013er	013fm	013fn	013fk	013fl	013gh	013gl	013gk	013gn
013kn	0146a	0149l	0157c	013lp	014no	013jm	014am	0147b	01489	013hl
0159m	016cm	016bn	015bl	0149m	017bj	0159l	015bn	016al	017cm	014cn
026bo	017bl	017bk	025bm	016bo	0248o	016an	024am	017al	026bk	015jo
026dn	027am	026al	025lp	028cj	026dm	0269o	0259d	026an	026cn	0249l
038cm	038ck	027fm	039dl	039dm	038dl	027cn	038dm	027co	027ao	038cn
D₁₄₄	D₁₄₅	D₁₄₆	D₁₄₇	D₁₄₈	D₁₄₉	D₁₅₀	D₁₅₁	D₁₅₂	D₁₅₃	D₁₅₄
013gp	013hj	013hk	013hq	013ik	013im	013ip	013jk	013jq	013km	013lm
013hi	013hm	013ho	013ij	013il	013in	013iq	013jp	013kl	013kq	013ln
0148m	013jn	013hp	0149p	0145a	013io	013jl	013ko	013kp	0146h	014dg
016bk	0158n	0149n	016do	018dm	0148k	016ag	016em	016ei	015dm	015go
0268c	015am	016aj	026ak	026cp	015dk	016dk	0249g	026el	015fk	026ag
028bi	026ai	027bi	027aj	027im	026km	028im	039fk	026fm	026dk	027ej
038dk	039en	028cn	028fm	038gm	038dj	038co	03aei	038ej	038el	037in
D₁₅₅	D₁₅₆	D₁₅₇	D₁₅₈	D₁₅₉	D₁₆₀	D₁₆₁	D₁₆₂	D₁₆₃	D₁₆₄	D₁₆₅
013lo	013mn	013mp	013no	013nq	013op	013oq	013pq	01458	0145b	0145g
013lq	013mo	013mq	013np	0145d	0145c	0145e	0146e	0146c	0145f	0146h
014bi	014dh	016bi	015fi	015dj	018ei	015bh	015fl	017fh	016dh	015en
016gk	016bf	019ei	019dl	017ei	025gi	018em	017gj	01bdj	025el	019bh
018dh	024di	019fh	026gi	028fh	029jl	029ik	028jl	029dm	025fm	025ek
027eg	038ek	027gi	03aej	029bj	038hn	02adh	029dk	029eh	028ag	028il
028ci	03aem	039fj	03afl	038di	039im	03a fk	038fk	039ej	028bk	03a fm
D₁₆₆	D₁₆₇	D₁₆₈	D₁₆₉	D₁₇₀	D₁₇₁	D₁₇₂	D₁₇₃	D₁₇₄	D₁₇₅	D₁₇₆
01469	0146d	0146j	0146m	0146o	0146q	01479	0147a	0147h	0147j	0147l
0146b	0146g	0146k	0146n	0146p	0147d	0147e	0147g	0147i	0147k	0147m
015el	0146i	0146l	0147f	015ck	015bj	0149g	015cn	0148d	0149i	0149e
017eg	016fm	017cj	019di	018fh	016gi	016di	016gl	015jl	0157f	015kl
01aci	018aj	017km	01ahj	018hj	018gl	01afj	019bg	016bg	016hm	026ci
02cfj	027ai	025dm	027fh	026eh	024bj	026ik	024ch	028ah	024bg	027ik
03bfl	039dh	03bfj	038jn	039gj	027hk	028ai	024ck	028km	028aj	027jl
D₁₇₇	D₁₇₈	D₁₇₉	D₁₈₀	D₁₈₁	D₁₈₂	D₁₈₃	D₁₈₄	D₁₈₅	D₁₈₆	D₁₈₇
01469	0146d	0146j	0146m	0146o	0146q	01479	0147a	0147h	0147j	0147l
0146b	0146g	0146k	0146n	0146p	0147d	0147e	0147g	0147i	0147k	0147m
015el	0146i	0146l	0147f	015ck	015bj	0149g	015cn	0148d	0149i	0149e
017eg	016fm	017cj	019di	018fh	016gi	016di	016gl	015jl	0157f	015kl
01aci	018aj	017km	01ahj	018hj	018gl	01afj	019bg	016bg	016hm	026ci
02cfj	027ai	025dm	027fh	026eh	024bj	026ik	024ch	028ah	024bg	027ik
03bfl	039dh	03bfj	038jn	039gj	027hk	028ai	024ck	028km	028aj	027jl
D₁₈₈	D₁₈₉	D₁₉₀	D₁₉₁	D₁₉₂	D₁₉₃	D₁₉₄	D₁₉₅	D₁₉₆	D₁₉₇	D₁₉₈
014ao	014bd	014bj	014bl	014bn	014bq	014cf	014cm	014cq	014dl	014do
014aq	014be	014bk	014bm	014bp	014cd	014cl	014cp	014dk	014dm	014dq
014ce	014bo	014co	014dp	014de	0156h	014dn	014df	014em	014fn	014fk
016im	015hm	014go	016eg	0168h	024ag	0157g	016bd	0168o	0167c	0168f
01bgi	0179f	0168e	016ln	0249i	0279g	016gm	017ag	016jl	0247i	017di
0279h	024af	0257h	0257g	025an	028bl	0249f	025eo	0249j	025fo	024ac
028bg	025en	026df	026cf	028eh	038in	025ac	0268f	025bh	026jl	027al

Table 1. Continue

D ₁₉₉	D ₂₀₀	D ₂₀₁	D ₂₀₂	D ₂₀₃	D ₂₀₄	D ₂₀₅	D ₂₀₆	D ₂₀₇	D ₂₀₈	D ₂₀₉
014ef	014eg	014eh	014eo	014fg	014fi	014fj	014fm	014fp	014gj	014gn
014ek	014el	014en	014eq	014fl	014fo	014gk	014gh	014gi	014gm	014gp
01579	014ep	0158g	014gl	014ln	0156d	0157d	014io	014hn	014ho	014hj
018ck	0157o	0168c	0168l	015co	018ah	0169i	0179h	0169l	016eo	0168n
025bn	0169n	0179i	017jl	0249m	025cl	0179k	024bl	018ai	019bi	019bl
025ho	0279j	0249e	025cn	025bl	025ln	0257d	0257b	025bo	0249c	025bp
027kn	028bj	025bj	026bd	027an	026dp	027ah	038dn	026mo	0249n	025do
D ₂₁₀	D ₂₁₁	D ₂₁₂	D ₂₁₃	D ₂₁₄	D ₂₁₅	D ₂₁₆	D ₂₁₇	D ₂₁₈	D ₂₁₉	D ₂₂₀
014hi	014hk	014hl	014hp	014im	014ip	014jl	014jn	014kl	014kn	014lm
014hm	014ik	014ij	014il	014in	014jk	014jm	014jp	014km	014kp	014lo
014jo	0158m	0157a	015bo	014ko	0157i	0156e	0157h	0157l	015bd	015gn
016km	016co	0179g	017fl	0168k	018ag	016en	018bh	016hn	016il	017ce
0248n	018af	025go	017ik	0179l	025cp	0259i	019eg	024ci	017df	024eg
025cm	024ak	026hn	0249b	025ci	027cf	025cj	025bd	025ko	024bi	025al
028bm	0259n	027ak	025cf	025df	028bh	0268i	025em	038fi	025ck	039dn
D ₂₂₁	D ₂₂₂	D ₂₂₃	D ₂₂₄	D ₂₂₅	D ₂₂₆	D ₂₂₇	D ₂₂₈	D ₂₂₉	D ₂₃₀	D ₂₃₁
014lp	014mo	014np	014op	0156a	0156c	0156g	0158b	0158c	0158i	0158k
014mn	014mp	0156b	0157k	0157n	0156f	0158a	0158e	0158f	0158j	0158l
016gn	016ak	017el	0168j	0179m	018am	0158h	0159f	016ce	015ab	015ac
016hk	016cj	019cl	016eh	019cj	024be	017dg	016hi	017ak	018eg	0167h
024bk	018eh	024dg	024cj	024ei	0269i	024aj	025jl	01ceh	025ce	024ai
025fh	024fh	026hj	029cg	02adg	026il	024bh	028cf	0248l	0268h	026hk
025fn	029ch	038jm	039il	038hk	038gj	03ail	029bi	025bk	037kn	029cf
D ₂₃₂	D ₂₃₃	D ₂₃₄	D ₂₃₅	D ₂₃₆	D ₂₃₇	D ₂₃₈	D ₂₃₉	D ₂₄₀	D ₂₄₁	D ₂₄₂
0158p	0159c	0159d	0159h	0159k	0159o	015ae	015af	015ce	015cp	015dg
0159b	0159i	015bc	0159j	015ad	015be	015bi	015cd	015cf	015de	015do
0168g	016gj	017af	016hj	0167d	0169m	015mn	0169h	015ld	017aj	015eg
016dg	0179b	017hk	0179n	017jm	017ij	018al	018bf	017ac	018fi	017am
0179j	017gm	024df	018be	024cf	024ce	024eh	024bd	017an	0247d	01acj
02beh	025hj	0258n	0247e	025ik	0258m	0258f	026ce	024ae	0258j	0247a
02bfi	027ad	027jm	025be	0269l	029dg	028be	0369g	025kn	0268g	0269n
D ₂₄₃	D ₂₄₄	D ₂₄₅	D ₂₄₆	D ₂₄₇	D ₂₄₈	D ₂₄₉	D ₂₅₀	D ₂₅₁	D ₂₅₂	D ₂₅₃
015dp	015ef	015ep	015fj	015fo	015gj	015gk	015hl	015il	015im	015jk
015fg	015gi	015hj	015hk	015gh	015hi	015ik	015ij	015io	015jm	015km
0178i	016am	0167e	0179c	017ad	017em	016mn	0178f	0168a	0179d	017bd
024al	018bi	018bm	017dn	018jl	019bk	017ai	025jn	018gj	019bf	017il
0257f	0258b	024ad	019gi	0247c	0248e	0248m	025km	019fi	01agj	0247g
0269m	0259m	0258h	0248b	0269h	0258o	0258l	025np	0247j	0257e	0269c
0369i	026ln	0269j	025ad	028bf	025mp	025jm	039jm	0269g	0258i	038gl
D ₂₅₄	D ₂₅₅	D ₂₅₆	D ₂₅₇	D ₂₅₈	D ₂₅₉	D ₂₆₀	D ₂₆₁	D ₂₆₂	D ₂₆₃	D ₂₆₄
0123r	0123q	0123p	0123o	0123n	0123m	0123l	0123k	0123j	0123i	0123h
012dm	012ho	012gq	012jq	012dr	012lq	012hr	012mq	012kq	012iq	012aq
02bhm	02ail	02bem	02aen	02chl	029hn	029fn	02afn	02dkq	027lp	029lp
039jp	02bhl	02bfl	02bgl	03ekp	02cgk	039kp	02bgm	028gn	02agm	028in
03dhp	03cip	03ckp	036fl	03ajp	036gk	03ejp	03fkp	03dkp	036dn	036fo
03bhp	03chp	03bjp	03cgp	039hp	03dip	038jp	03bfi	038hp	03bkp	03akp
05afn	04djo	05ahn	04bin	05ain	05bgn	04cjo	04ahn	04afj	04bjo	04bhm
D ₂₆₅	D ₂₆₆	D ₂₆₇	D ₂₆₈	D ₂₆₉	D ₂₇₀	D ₂₇₁	D ₂₇₂	D ₂₇₃	D ₂₇₄	D ₂₇₅
012qr	012pr	012or	012nr	012mr	012lr	012kr	012jr	012er	012br	0128r
012el	012do	012fq	012hq	012ir	012fr	012gr	012cr	012ar	0129r	012eq
02cin	019hm	01ail	01bho	01chm	019in	019gm	019io	019hn	019go	01akq
02agl	02bel	02bgn	02aim	02bhn	02din	02cio	028fo	029jo	02bjo	02bgo
036in	036hl	02ahm	02chm	036gl	038kp	036co	036gn	036eo	036hm	02aem
03ahp	03cjp	03djp	036em	03aip	03bip	03dlp	038ip	037jp	03fjp	03bio
049dm	04ajo	048io	03ein	049dn	03djn	049jo	048jo	04dio	04cio	04bio

Table 1. Continue

D₂₇₆	D₂₇₇	D₂₇₈	D₂₇₉	D₂₈₀	D₂₈₁	D₂₈₂	D₂₈₃	D₂₈₄	D₂₈₅	D₂₈₆
012qr	012pr	012or	012nr	012mr	012lr	012kr	012jr	012er	012br	0128r
012el	012do	012fq	012hq	012ir	012fr	012gr	012cr	012ar	0129r	012eq
02cin	019hm	01ail	01bho	01chm	019in	019gm	019io	019hn	019go	01akq
02agl	02bel	02bgn	02aim	02bhn	02din	02cio	028fo	029jo	02bjo	02bgo
036in	036hl	02ahm	02chm	036gl	038kp	036co	036gn	036eo	036hm	02aem
03ahp	03cjp	03djp	036em	03aip	03bip	03dlp	038ip	037jp	03fjp	036io
049dm	04ajo	048io	03ein	049dn	03djn	049jo	048jo	04dio	04cio	04bio
D₂₈₇	D₂₈₈	D₂₈₉	D₂₉₀	D₂₉₁	D₂₉₂	D₂₉₃	D₂₉₄	D₂₉₅	D₂₉₆	D₂₉₇
012lp	012fp	012cp	012ap	0128p	012no	012mo	012ko	012io	012fo	012ao
012gp	012dp	012bp	0129p	0127p	012co	012lo	012jo	012go	012bo	0129o
01cmr	019or	01eor	01bmr	01aem	02fiq	01chp	01dnr	01anr	01ior	01blr
02dgn	02flo	029ho	02cjp	02dgg	02bgp	02cfp	02aiq	02cjm	02ajo	02cfq
02djm	02ajm	02ajn	02cfo	02bjm	02cgl	02afp	02bfo	02dhl	02dgg	02dkp
036ep	03blp	036ho	036il	02ehl	03hlp	03eip	036fn	036lo	03alp	036im
04cho	04bho	03clp	048fo	03ejn	039cm	039cl	03bfp	049do	048cl	048co
D₂₉₈	D₂₉₉	D₃₀₀	D₃₀₁	D₃₀₂	D₃₀₃	D₃₀₄	D₃₀₅	D₃₀₆	D₃₀₇	D₃₀₈
0128o	012mn	012jn	012hn	012gn	012fn	012bn	0129n	012lm	012jm	012gm
012ln	012kn	012in	012en	012dn	012cn	012an	012km	012im	012hm	012cm
01chq	02ejq	01for	01bor	01gor	01dor	01cqq	02glq	01hor	01kor	011or
02cqq	02dgp	02biq	02blq	02chq	02fkp	02bgq	02afq	026dq	02aep	02dhq
02dim	02dhm	02ein	02clp	02bko	02cko	027hp	02ekp	02chp	02fko	02djo
036hp	036jo	037ak	037ip	036jn	036fp	036ip	036cp	036hn	036do	036ko
03eko	048jn	048eo	03fko	048cm	03gkp	048ko	038dp	03aep	048hn	048gn
D₃₀₉	D₃₁₀	D₃₁₁	D₃₁₂	D₃₁₃	D₃₁₄	D₃₁₅	D₃₁₆	D₃₁₇	D₃₁₈	D₃₁₉
012fm	012em	012kl	012jl	012il	012dl	012cl	012bl	012jk	012ik	012dk
012bm	012am	012hl	012gl	012fl	012hk	012gk	012fk	012fj	012ek	012hj
01aor	01dhr	02hmq	01inr	017or	016or	01hnr	017nq	026bq	016lq	016mp
027dq	026kp	028dq	028eq	02clq	02elp	02eio	02hmp	028ko	02fnq	027mq
02ejp	02dio	02eip	036gm	02dip	029eo	027go	02dhp	028go	027ho	02agp
03flp	036kp	037ao	037lp	037kp	03glp	0369o	028do	0369p	037an	039p
03gko	036bp	04aho	049ho	048fn	039fp	038lp	038cf	038fp	048cn	038bn
D₃₂₀	D₃₂₁	D₃₂₂	D₃₂₃	D₃₂₄	D₃₂₅	D₃₂₆	D₃₂₇	D₃₂₈	D₃₂₉	D₃₃₀
012ck	012ij	012ej	012hi	012gi	012fi	012ei	012gh	012fh	0134r	0134q
012gj	01mpr	012dj	01lpr	0134o	0134p	0134n	01jpr	01kpr	01hmr	01cor
01inq	01ckp	019mq	01ekp	019kp	01ajp	01blq	016ko	017kp	01adm	01bkp
026lq	029fp	027lq	02bjp	02cjo	027jp	029jp	029lq	01bim	01agl	01agm
028gp	02ago	02gmp	029hm	028hn	02ejn	027ep	02bjn	02ajp	02bho	02cgo
027ko	037hp	029in	036dp	036gp	029gm	029en	037al	0369l	02dhn	02ain
03agp	039cn	036lp	038bm	03elp	038bl	038bo	039gp	038gp	048im	02bfm
D₃₃₁	D₃₃₂	D₃₃₃	D₃₃₄	D₃₃₅	D₃₃₆	D₃₃₇	D₃₃₈	D₃₃₉	D₃₄₀	D₃₄₁
0134m	0134k	0134i	0134h	01npr	01fpr	01dpr	01bpr	019pr	017pr	015pr
0134l	0134j	01ipr	01hpr	01gpr	01epr	01cpr	01apr	018pr	016pr	01jnr
01dio	01akp	018jp	018jo	01ckq	01knr	017nr	018or	01gnr	01dir	01ejr
02agq	027io	019gl	01afl	01afm	01ain	019ip	018gp	01afo	01agn	01afn
029fo	028ho	02akp	029kp	01bel	019im	01ajm	01ael	01bhk	01bfl	01cek
029jn	028kn	028eo	028hp	03bgn	03afn	03aio	03bin	03bho	03cgo	03bhk
048hm	048gm	039dg	037am	04chn	04cin	04ain	04bhn	04bhl	03bfm	04bgm
D₃₄₂	D₃₄₃	D₃₄₄	D₃₄₅	D₃₄₆	D₃₄₇	D₃₄₈	D₃₄₉	D₃₅₀	D₃₅₁	D₃₅₂
014pr	013pr	01467	01mor	01lor	015or	014or	013or	01578	014nr	013nr
01fnr	01enr	01cnr	01bnr	01lnr	019nr	018nr	016nr	015nr	01689	01kmr
01dmr	01clr	01gmr	01fmr	01cgp	01emr	01dkr	01cem	01dfp	01chr	01diq
01bdn	01bfn	01agk	01bhq	019gh	01agp	01bgp	01bgk	01adl	01cen	01bfm
01ahl	01bhl	02ahj	01bdl	02ceo	01chj	01bgm	01dfk	02agi	02afo	01bgl
03bgm	03ain	03bfo	04ago	03bin	02cim	02bdn	03cgn	03cin	03cgl	02cgp
04afo	04chm	04bgo	04bfo	04din	03bfn	04cgo	04bfn	03dhm	04aem	03bhn

Table 1. Continue

D₃₅₃	D₃₅₄	D₃₅₅	D₃₅₆	D₃₅₇	D₃₅₈	D₃₅₉	D₃₆₀	D₃₆₁	D₃₆₂	D₃₆₃
014pr	013pr	01467	01mor	01lor	015or	014or	013or	01578	014nr	013nr
01fnr	01enr	01cnr	01bnr	01lnr	019nr	018nr	016nr	015nr	01689	01kmr
01dmr	01clr	01gmr	01fmr	01cgp	01emr	01dkr	01cem	01dfp	01chr	01diq
01bdn	01bfn	01agk	01bhq	019gh	01agp	01bgp	01bgk	01adl	01cen	01bfm
01ahl	01bhl	02ahj	01bdl	02ceo	01chj	01bgm	01dfk	02agi	02afo	01bgl
03bgm	03ain	03bfo	04ago	03bim	02cim	02bdn	03cgn	03cin	03cgl	02cgp
04afo	04chm	04bgo	04bfo	04din	03bfn	04cgo	04bfn	03dhm	04aem	03bhn
D₃₆₄	D₃₆₅	D₃₆₆	D₃₆₇	D₃₆₈	D₃₆₉	D₃₇₀	D₃₇₁	D₃₇₂	D₃₇₃	D₃₇₄
01kr	01bkr	01akr	017kr	014kr	019bc	01gjr	01bjr	01ajr	019jr	015jr
01ekr	019kr	018kr	016kr	013kr	01hjr	01djr	018jr	017jr	016jr	014jr
01ckr	01fmq	014fr	015kr	01ejq	016nq	01cjr	01foq	01dgr	01eir	01acd
01hmp	01dgp	01glp	01eiq	01bjo	019ep	015kp	01dhp	01gnp	015np	01dkp
01eio	016dp	018ep	01cgi	019ho	02gkp	018hn	017gn	017cp	017fo	026hp
02glp	02flq	027dp	02ckp	02bhp	028fp	026mq	02hmq	026lp	02eho	029io
038ep	0268n	02fin	038io	02eim	03aho	028co	026cq	038ho	039dp	039go
D₃₇₅	D₃₇₆	D₃₇₇	D₃₇₈	D₃₇₉	D₃₈₀	D₃₈₁	D₃₈₂	D₃₈₃	D₃₈₄	D₃₈₅
013jr	01fir	01bir	019ir	018ir	014ir	01bde	01fhr	01ehr	017hr	013hr
01gir	01cir	01air	017ir	016ir	013ir	01ahr	019hr	018hr	016hr	018gr
01imq	0145p	014hr	014er	015ir	01gmq	016br	017dr	019gr	015hr	017gr
016gp	017hp	015jp	018np	016er	019jo	015mq	017mq	01jnp	01emq	015lp
01ahn	02ako	018fn	018fp	01fjp	01ahm	027fp	016kp	017lp	017fp	017co
02eko	028ao	0268o	02fjp	02gko	02bio	029ko	027ip	028kp	024do	02aip
039ho	03agn	03fjo	038jo	03ahn	02fjn	039hn	03bko	03afo	039io	03cim
D₃₈₆	D₃₈₇	D₃₈₈	D₃₈₉	D₃₉₀	D₃₉₁	D₃₉₂	D₃₉₃	D₃₉₄	D₃₉₅	D₃₉₆
01cef	01egr	014gr	01dfg	01dfr	01cfr	01bfr	016fr	01cer	01ber	018er
016gr	015gr	013gr	018fr	017fr	01afr	019fr	01der	019er	01aer	017er
017ar	01koq	019lq	01inp	0159r	0167q	018br	018kq	01jnk	01589	019dr
018lp	018io	017jo	019jp	018lq	01bjn	019lp	017jp	019ko	018in	017iq
027kp	019jn	01ajn	029kq	016jo	0249p	017ko	024bn	019kn	02bkk	016bp
028ip	029lo	02alp	026aq	02cjn	029ip	027mp	02imq	028lp	028jp	024co
03ako	03cko	029go	03bjn	03ajn	03bjo	028jo	03ajo	027jo	027lo	039ko
D₃₉₇	D₃₉₈	D₃₉₉	D₄₀₀	D₄₀₁	D₄₀₂	D₄₀₃	D₄₀₄	D₄₀₅	D₄₀₆	D₄₀₇
015er	01bdr	01adr	014dr	01acr	018cr	015cr	01abr	014br	018ar	0189r
01cdr	018dr	016dr	01bcr	019er	017cr	014cr	015br	019ar	014ar	0179r
018mq	017br	015dr	015lq	0145o	016cr	019br	016ar	015ar	01doq	01ehq
01ajo	017mp	017lq	016ho	018hm	01amq	01eko	018go	01cgo	018hp	016ep
0268p	018kp	01bko	02blp	026jp	01ahp	01aho	024ho	02ahp	01afp	02flp
02dkn	02dtp	02dko	02clo	029do	029bp	029dn	03chn	029gp	02bip	02cho
03cjo	039in	028jn	029gn	03ago	03djo	038ko	03eim	03dio	03bio	039ep
D₄₀₈	D₄₀₉	D₄₁₀	D₄₁₁	D₄₁₂	D₄₁₃	D₄₁₄	D₄₁₅	D₄₁₆	D₄₁₇	D₄₁₈
0169r	0178r	0158r	0167r	0147r	0156r	0146r	0145r	0145q	0145n	0145i
0149r	0168r	0148r	0157r	0145l	0145m	0145k	01goq	01ioq	0145j	01moq
01cjq	01dhq	01cjo	01cfp	01bhp	01cgm	01djp	019fp	01dfn	01dho	017gp
01aao	01fjo	01cgl	019hl	01cgn	02dfq	018gm	01ben	01bhj	02ahq	01djl
01dhm	024fk	01dfl	02cgi	029fh	02acm	02bdm	02acn	029im	029gq	02bhq
029eg	03cio	02bgi	03dim	029bl	039fo	02eil	02bim	02ehm	028an	02adm
02djn	03aim	03dhn	03bhm	03ejo	03aen	03chm	03cho	03din	02bkn	03ahm
D₄₁₉	D₄₂₀	D₄₂₁	D₄₂₂	D₄₂₃	D₄₂₄	D₄₂₅	D₄₂₆	D₄₂₇	D₄₂₈	D₄₂₉
0169r	0178r	0158r	0167r	0147r	0156r	0146r	0145r	0145q	0145n	0145i
0149r	0168r	0148r	0157r	0145l	0145m	0145k	01goq	01ioq	0145j	01moq
01cjq	01dhq	01cjo	01cfp	01bhp	01cgm	01djp	019fp	01dfn	01dho	017gp
01aao	01fjo	01cgl	019hl	01cgn	02dfq	018gm	01ben	01bhj	02ahq	01djl
01dhm	024fk	01dfl	02cgi	029fh	02acm	02bdm	02acn	029im	029gq	02bhq
029eg	03cio	02bgi	03dim	029bl	039fo	02eil	02bim	02ehm	028an	02adm
02djn	03aim	03dhn	03bhm	03ejo	03aen	03chm	03cho	03din	02bkn	03ahm

Table 1. Continue

D430	D431	D432	D433	D434	D435	D436	D437	D438	D439	D440
015nq	014nq	01jmq	01cmq	01bmq	014mq	01dlq	017ab	01hkq	01dkq	019kq
01kmq	01dmq	016mq	0169a	01j1q	01ilq	014lq	01ikq	01gkq	01bkq	017kq
01dfq	01fhp	01ekq	01alq	01hlq	01djo	01bnp	01fkq	01biq	018bc	015kq
01din	01aio	01dfo	017ho	01bhn	01fho	0167k	018ho	01cmo	01hmo	01qim
019en	01aco	01bjl	024gn	01fhh	01akm	024ek	024gp	018mo	02hkp	01dfi
029fq	028iq	029eq	02beg	02ciq	02aeg	02ado	02elq	024go	02bfh	0279o
02acl	029bo	028df	028fq	0279n	02fio	029cn	02dgo	02fkq	02glo	02dil
D441	D442	D443	D444	D445	D446	D447	D448	D449	D450	D451
016kq	01hjg	01bjg	019jq	017jq	014jq	01fiq	018iq	014iq	019hq	016hq
014kq	01gjq	01ajg	018jq	015jq	019cd	019iq	015iq	01ahq	018hq	014hq
01giq	016jq	016iq	015hq	01ade	0156i	017hq	01fhq	018gq	017fq	01afq
018co	018dp	016eq	01ego	01dmo	024hn	01enp	01hjo	016mo	0167o	01fmo
01cej	01fln	01gmo	0179o	024fo	0279m	018eo	01ekn	019bo	024fq	01chn
0279l	024in	0257j	0257k	028lq	02akn	024io	027hq	024eo	027gq	024ln
02fkn	028hq	029df	02gjp	02ehn	039eo	027ac	0268m	02ekq	02acp	02alo
D452	D453	D454	D455	D456	D457	D458	D459	D460	D461	D462
01bef	01egq	01dgg	016gg	01cfg	01cfq	01bfq	018fq	015fq	01beq	017eq
01aqq	019gq	017gq	014gq	019fq	016fq	01aeq	01deq	01ceq	018eq	015eq
01lnp	015gq	01emp	019eq	0179q	0156m	01hnp	016cq	017dq	016dq	01bdq
01aim	016np	01imo	019mo	016ip	01dkm	01clo	01dlm	019lo	016go	017mo
028kq	017lo	01cln	019bn	024bo	02ajq	01aln	024cm	01ckm	01cjl	019jl
027eq	0279k	024jo	028jq	02akq	028aq	0257n	0257p	027kq	024lo	026kq
028bo	02ckn	02ckq	027bd	028lo	026ip	02elo	039jo	0279p	024ao	027iq
D463	D464	D465	D466	D467	D468	D469	D470	D471	D472	D473
01bef	01egq	01dgg	016gg	01cfg	01cfq	01bfq	018fq	015fq	01beq	017eq
01aqq	019gq	017gq	014gq	019fq	016fq	01aeq	01deq	01ceq	018eq	015eq
01lnp	015gq	01emp	019eq	0179q	0156m	01hnp	016cq	017dq	016dq	01bdq
01aim	016np	01imo	019mo	016ip	01dkm	01clo	01dlm	019lo	016go	017mo
028kq	017lo	01cln	019bn	024bo	02ajq	01aln	024cm	01ckm	01cjl	019jl
027eq	0279k	024jo	028jq	02akq	028aq	0257n	0257p	027kq	024lo	026kq
028bo	02ckn	02ckq	027bd	028lo	026ip	02elo	039jo	0279p	024ao	027iq
D474	D475	D476	D477	D478	D479	D480	D481	D482	D483	D484
0159q	0168q	0157q	0156q	0156p	0156n	0156j	01jmp	01imp	01cmp	01amp
0178q	0158q	0156o	01anp	017np	0156k	01kmp	01gmp	01fmp	01bmp	019mp
017eo	01ako	019gn	01bmo	018ln	018km	01dmp	01flp	01gio	016ab	01ikp
01ado	01bio	019il	01dgo	01bil	024jm	01ehn	01cdo	01akn	01egm	0167j
024dm	01dgm	024hk	024el	024fj	02dmp	024en	02acq	01dgi	029ce	024fn
02cfh	024gi	02cep	02fjm	02fil	02adp	024gm	02gjn	024cp	0268k	02bep
028gq	02ejm	03ado	03ben	03cfo	03bgj	03bem	029bm	02bkq	039cp	02gjm
D485	D486	D487	D488	D489	D490	D491	D492	D493	D494	D495
015mp	01ilp	01hlp	01dlp	01alp	016lp	01gkp	01fkp	01gip	015ip	01ehp
01jlp	01clp	017bc	01blp	01hkp	01gjp	01cjp	018cd	01fip	019de	016hp
01emo	01beo	01fkn	01bdo	0167n	018lo	0178p	01dlo	019hp	01bkn	01egp
01eho	01jln	01adn	017ln	018bn	01bcn	019km	01fjm	01ikn	01cfm	018kn
01bln	018en	024ik	01gjm	024il	024jl	024gj	024km	017kn	024kq	01bik
02ehk	02ceq	028nq	024jq	02bdq	029nq	02gnq	028ce	024jn	02cnq	024nq
02dgg	02ilo	029co	02hkq	02amp	02fim	02hkn	0369m	028bq	0268l	028mp
D496	D497	D498	D499	D500	D501	D502	D503	D504	D505	D506
015mp	01ilp	01hlp	01dlp	01alp	016lp	01gkp	01fkp	01gip	015ip	01ehp
01jlp	01clp	017bc	01blp	01hkp	01gjp	01cjp	018cd	01fip	019de	016hp
01emo	01beo	01fkn	01bdo	0167n	018lo	0178p	01dlo	019hp	01bkn	01egp
01eho	01jln	01adn	017ln	018bn	01bcn	019km	01fjm	01ikn	01cfm	018kn
01bln	018en	024ik	01gjm	024il	024jl	024gj	024km	017kn	024kq	01bik
02ehk	02ceq	028nq	024jq	02bdq	029nq	02gnq	028ce	024jn	02cnq	024nq
02dgg	02ilo	029co	02hkq	02amp	02fim	02hkn	0369m	028bq	0268l	028mp

Table 1. Continue

D₅₀₇	D₅₀₈	D₅₀₉	D₅₁₀	D₅₁₁	D₅₁₂	D₅₁₃	D₅₁₄	D₅₁₅	D₅₁₆	D₅₁₇
017ap	016ap	0169p	0167p	0167l	01jlo	01ilo	015kn	015ko	015lo	015mo
0189p	0179p	0168p	01alo	01jmo	01hlo	01glo	015lm	015ln	015mo	0169k
01elo	01dgn	01fin	019dn	01hjl	01fio	01cjm	0169g	017eh	017cf	017hl
01dik	01acm	019cm	018im	01dhk	01dkn	01gkm	01ach	018ik	018il	018cm
024ep	01fil	01fhj	0246m	029dq	01ejm	01egi	0248j	019cf	01bdf	0246d
02bnq	024iq	02bmp	02ehq	028bp	024im	02cmq	0258k	0247f	0269k	025eh
02fip	026iq	029cp	02adq	03aao	024hl	02amq	026dg	025dp	026jm	025il
D₅₁₈	D₅₁₉	D₅₂₀	D₅₂₁	D₅₂₂	D₅₂₃	D₅₂₄	D₅₂₅	D₅₂₆	D₅₂₇	D₅₂₈
01234	0123g	0124r	0125q	0126p	0127o	0128n	012al	012di	012fg	01356
018cg	0169j	017be	0169f	012bk	0129m	012cj	012eh	0159a	016ah	016ai
029gi	019fl	018df	017bm	018ch	01adi	016be	017bf	017fn	018jn	017bg
036cn	0259k	01ack	019ch	025eq	025bf	0246f	0258a	024cl	0259b	018cf
03bgl	026ad	038eh	024dk	028eg	025hl	037jm	0259f	0257i	025lo	02aeq
048en	02ilp	049dl	024ej	036dg	026fp	038kn	037gp	036ap	026jn	02aik
05afm	05ahm	05agn	03agm	048fm	037il	048do	05bhm	039fi	038bk	039gn
D₅₂₉	D₅₃₀	D₅₃₁	D₅₃₂	D₅₃₃	D₅₃₄	D₅₃₅	D₅₃₆	D₅₃₇	D₅₃₈	D₅₃₉
013fr	0145h	01478	014fq	015fp	0167i	016ae	016af	016bc	016de	016ef
016ac	0169o	019eh	016ci	016cn	016ad	016cd	016gh	0178g	016fi	016hl
016lm	017fg	01bfh	0189g	0189i	018bl	018bd	018hi	019be	017cg	018jk
01dim	024bm	01iko	01adk	019ce	01aeg	019jm	0247n	024dp	01ahk	0246b
0259g	025ai	026fo	0246g	0247m	024hp	0248i	0248k	0259h	0247b	0258c
026gp	026ac	0279j	025aq	0248g	025cq	024bq	0259c	02gkq	0248a	025dh
03adl	03ahk	038il	027gp	036jm	02bmq	036fk	036el	03adp	03beo	036dm
D₅₄₀	D₅₄₁	D₅₄₂	D₅₄₃	D₅₄₄	D₅₄₅	D₅₄₆	D₅₄₇	D₅₄₈	D₅₄₉	D₅₅₀
013fr	0145h	01478	014fq	015fp	0167i	016ae	016af	016bc	016de	016ef
016ac	0169o	019eh	016ci	016cn	016ad	016cd	016gh	0178g	016fi	016hl
016lm	017fg	01bfh	0189g	0189i	018bl	018bd	018hi	019be	017cg	018jk
01dim	024bm	01iko	01adk	019ce	01aeg	019jm	0247n	024dp	01ahk	0246b
0259g	025ai	026fo	0246g	0247m	024hp	0248i	0248k	0259h	0247b	0258c
026gp	026ac	0279j	025aq	0248g	025cq	024bq	0259c	02gkq	0248a	025dh
03adl	03ahk	038il	027gp	036jm	02bmq	036fk	036el	03adp	03beo	036dm
D₅₅₁	D₅₅₂	D₅₅₃	D₅₅₄	D₅₅₅	D₅₅₆	D₅₅₇	D₅₅₈	D₅₅₉	D₅₆₀	D₅₆₁
017ci	017cn	017de	017ef	017gh	017hm	017im	017in	017io	017jk	017lm
0189k	017kl	019am	017jn	018ci	018bo	0189l	019ai	019dg	0189o	019do
019df	01cgk	01chk	01abk	018dg	019ci	01beh	01bdg	01aeh	01bei	01cgj
01fjn	01gjl	0246a	0248p	01afi	01acf	01fik	01gkn	01afk	024ip	01gik
02479	024cq	025jo	025di	0247p	01eim	024kp	0247h	01ikm	025hp	025mo
02hlq	0258p	026fq	025mq	025fp	02469	0269p	025bq	0248f	026hq	025nq
036gj	02fjq	03bep	02beq	0269b	026gq	027cq	026ae	0258q	027aq	04agk
D₅₆₂	D₅₆₃	D₅₆₄	D₅₆₅							
0167f	0169b	0169c	0189m							
0168b	0169d	0169e	01bdh							
019bd	016cf	017bi	01bfj							
01adh	017ah	018ae	01gjo							
025im	018bg	01ceg	0249d							
026kn	024bf	0259j	027ce							
038im	024cg	0259l	0369c							

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