CSCI 6110
Spring 2023
Applied Combinatorics & Graph Theory

Group Work
March 7, 2023

Group Members:

1. _____ (scribe)
2. _____
3. _____
4. _____

∘59. American coins are all marked with the year in which they were made. How many coins do you need to have in your hand to guarantee that on two (at least) of them, the date has the same last digit?

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To prepare for the 2023 Crescent City Classic 10K run, an elite runner starts a training regime wherein she runs at least once a day over the next 44 days for a total of 70 runs in all. Show that there is a period of consecutive days during which the runner runs exactly 17 times.

CSCI 6110.601
Fall 2017
Applied Combinatorics & Graph Theory

Group Work
September 7, 2017

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1. _____ 2. _____

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➔• 132. In a partition of the set $[k]$, the number k is either in a block by itself, or it is not. How does the number of partitions of $[k]$ with n parts in which k is in a block with other elements of $[k]$ compare to the number of partitions of $[k-1]$ into n blocks? Find a two-variable recurrence for $S(k,n)$, valid for k and n larger than one.

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133. What is $S(k,1)$? What is $S(k,k)$? Create a table of values of $S(k,n)$ for k between 1 and 5 and n between 1 and k. This table is sometimes called *Stirling's Triangle (of the second kind)*. How would you define $S(k,n)$ for the nonnegative values of k and n that are not both positive? Now for what values of k and n is your two variable recurrence valid?

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·136. What is $S(k, k-1)$?