PES UNIVERSITY, Bangalore

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Department of Computer Science & Engineering

Statistics for Data Science

Assignment – Probability

1. Ignoring leap days, the days of the year can be numbered 1 to 365. Assume that birthdays are equally likely to fall on any day of the year. Consider a group of n people, of which you are not a member. An element of the sample space Ω will be a sequence of n birthdays (one for each person).

(a) Define the probability function P for Ω..

(b) Consider the following events:

A: “someone in the group shares your birthday”

B: “some two people in the group share a birthday”

C: “some three people in the group share a birthday”

Carefully describe the subset of Ω that corresponds to each event.

(c) Find an exact formula for P(A). What is the smallest n such that P(A) > .5?

(d) Find an exact formula for P(B) and P(C).