University of Roehampton London

CMP020N205S	Mathematics for Data Science 2023/24

Week-8
Introduction to Probability

Answer the following Multiple-Choice Questions

1. A collection of all elementary results, or **outcomes** of an experiment, is called

a. Sample space
b. Event
c. Probability

2. What will be the probability of getting odd numbers if a dice is thrown?

a. 1/2

b. 2

c. 4/2

d. 5/2

3. The probability of getting two tails when two coins are tossed is -

a. 1/6
b. 1/2
c. 1/3
d. 1/4

4. What will be the probability of losing a game if the winning probability is 0.3?

a. 0.5
b. 0.6
c. 0.7
d. 0.8

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Solve the following problems

1. If a system appears protected against a new computer virus with probability 0.7, then what is the probability that it will be exposed to it?

2. Suppose that a computer code has no errors, has the probability of 0.45, then what is the probability that the computer code has atleast 1 error?

3. Ninety percent of flights depart on time. Eighty percent of flights arrive on time. Seventy-five percent of flights depart on time and arrive on time.

- (a) You are meeting a flight that departed on time. What is the probability that it will arrive on time?
- (b) You have met a flight, and it arrived on time. What is the probability that it departed on time?
- (c) Are the events, departing on time and arriving on time, independent?

4. Given two fair dices, what is the probability that two dices sum to 8? What is the probability that two dices sum to 8 when the first dice is 3?

5. 50% of all people who receive a first interview receive a second interview; 95% of your friends that got a second interview felt they had a good first interview; 75% of your friends that DID NOT get a second interview felt they had a good first interview. If you feel that you had a good first interview, what is the probability you will receive a second interview?

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