

Birzeit University
Mathematics Department
Second Semester 2021/2022
STAT3321 – Quiz 1
Instructor: Dr. Hani Kabajah

(10)

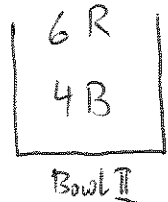
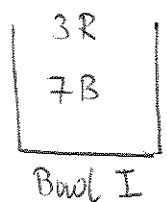
Name (بالعربية): Key

Student No.:

Question (10 points)

Bowl I contains 3 red chips and 7 blue chips. Bowl II contains 6 red chips and 4 blue chips. A bowl is selected at random and then 1 chip is drawn from this bowl.

- 1) Compute the probability that this chip is blue.
- 2) Relative to the hypothesis that the chip is blue, find the conditional probability that it is drawn from bowl II.



R: Red I: Bowl I
 B: Blue II: Bowl II

$$P(I) = 1/2 \quad P(II) = 1/2$$

$$1) P(B) = P(B|I) \cdot P(I) + P(B|II) \cdot P(II)$$

$$= \frac{7}{10} \cdot \frac{1}{2} + \frac{4}{10} \cdot \frac{1}{2} = \frac{11}{20} = 0.55$$

$$2) P(II|B) = \frac{P(B|II) \cdot P(II)}{P(B)}$$

$$= \frac{\frac{4}{10} \cdot \frac{1}{2}}{\frac{11}{20}} = \frac{4}{11} = 0.3636$$