

Part 1

Do this part on the answer booklet.

(25%) 1. Given

W	B	R
O	O	O
O	O	O
O	O	O

Four balls are to be selected at random without replacement. Calculate the probabilities of the following events.

- a) of getting exactly two white balls.
- b) of getting at least one red ball.
- c) of getting one white, one black, and two red balls.
- d) of getting at least one white ball and at least one black ball.
- e) of getting exactly two colors.

(25%) 2. Given:

W	B	W	B	W	B
O	O	O	O	O	O
O	O	O	O		O
		O	O		O

A ball is to be selected from each box. Calculate the probabilities of each of the following events.

- a) getting all white balls.
- b) getting all black balls.
- c) getting exactly two white balls.

(20%) 3. Given $p(A/B) = 0.5$, and $p(B/A) = 0.7$, find $p(\bar{A} / \bar{B})$. $P(A \cup B) = 0.9$, also given.

b) A box contained: 3 fair coins and two coins with $p(T) = \alpha$. Two coins were selected at random and tossed, and two heads came up. Calculate in terms of α the conditional probability that two fair coins were selected.

Part 2

Do this part on the question sheet.

Please either circle the correct answer or supply your answer whenever appropriate.

1. If $p(A) = p(B) = 0.75$, which is true?

- a) $p(A \cap B) = 0$ b) $p(A \cap B) = 1$ c) $p(A \cup B) = 1$ ~~$p(A \cap B) \geq 0.5$~~ none

2. Five distinct objects are to be randomly distributed into four distinct boxes. What is the probability that no box remains empty?

- a) 17/64 b) 15/64 c) 19/64 d) 21/64 e) none

3. Six identical objects are to be randomly distributed into ~~four~~ five distinct boxes. Calculate the probability that no box remains empty.

- a) 1/3 ~~a) 1/3~~ b) 1/2 c) 11/14 d) 5/14 e) none

4. If the probability of getting at least one tail upon tossing a coin 4 times is "p", what is the probability in terms of "p" of getting exactly two tails?

Answer: -----

~~1/2~~ $\frac{p}{p-1}$

5. Three fair dice are to be thrown. Calculate the probability that "5" is the largest and "2" is the lowest among the three numbers.

- a) 0.0278 b) 0.0478 c) 0.0833 d) 0.0733 e) none

6. In a box there are 10 balls two of each color. Four balls are to be selected at random without replacement. What is the probability of getting exactly two colors?

Answer: -----

$\frac{3}{4}$

Good luck\$\$\$\$\$\$