**CC-QUAMETH21/22**

**Quantitative Methods with Probability & Statistics**

**Assignment 4**

**Due: Nov 21, 2022**

**Instructions:**

1. Download this document and solve each problem applying the principles of probability. Show your complete solutions for each problem.
2. If your final answer is in decimal format, round it off to 3 decimal places.
3. Your solutions and final answer should be hand written. Computer-printed submission is not acceptable. You don’t need to rewrite the problem statement in your answer sheet.
4. Use long-size bond paper for your answer sheet.
5. Submit your answer sheet on Monday, Nov 21, 2022 (via F2F).

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**Problem 1 (marks: 5 points)**

A coin is tossed 3 times. What is the probability of getting 3 tails up?

**Problem 2 (marks: 5 points)**

Four women and five men apply for three job openings. The manager finds them all "equally qualified" and decides to ‘randomly draw names out of a hat’. What is the probability that the manager will hire 3 men?

**Problem 3 (marks: 10 points)**

Due to the frequent visit of typhoons in our country, the prices of 3 prime commodities such rice ( R ), pork ( P ) and beef ( B ) will increase next month with probabilities equal to 0.33, 0.67 and 0.25 respectively. Assuming independence of the prices, find the probability that:

3.1) none of the three will increase in price?

3.2) only rice (R) and pork (P) will increase?

**Problem 4 (marks: 10 points)**

In the meat section of a self-service market, there are 100 chickens, 75 of which are fresh, and 25 are a week old. If two chickens are selected at random, one after another, what is the probability:

4.1) both are fresh?

4.2) only one is fresh?

**Problem 5 (marks: 5 points)**

In a game of cards, you will be paid Php 3, if you draw an ace and Php 2 if you draw a king. Any other card means you pay Php 1. What is your mathematical expectation?

**Problem 6 (marks: 15 points)**

A coin is tossed three times. What is the probability that exactly two heads occur, given that:

6.1) the first outcome was a head?

6.2) the first outcome was a tail?

6.3) the first two outcomes were heads?

6.4) the first two outcomes were tails?

6.5) the first outcome was a head and the third outcome was a head?