Math 5710 Opportunity #3 ♬ W/07/15/20 – H/07/16/20

1.   Please print your name legibly.   _____

2.   Examine each of the following propositions, determine whether or not it is true, display your choice by circling either "T" or "F"; for each either prove that your decisions is correct or write at least one paragraph that explains why you decided that the proposition is true or why you decided that the proposition is false:

A. $\varnothing \in [\, 0, \, \infty\,)$

      T   F

B. $(\, V$ is the universe $\wedge A \in \{\, \text{sets} \,\} \wedge A^{c} = A\,) \Rightarrow V = \varnothing$

      T   F

C. $s, t \in \{\, \text{sequences} \,\} \Rightarrow |\, s \,| = |\, t \,|$

      T   F

D. $(\, \Omega$ is a sample space $\wedge A$ is an event of $\Omega \wedge p$ is a probability distribution on $\Omega \,\})$
      $\Rightarrow (\, x$ is an outcome of $\Omega \Rightarrow x$ is a set $)$

      T   F

E. (Ω is a sample space $\land A$ is an event of Ω $\land$ p is a probability distribution on Ω })
    $\Rightarrow A$ is a set

    T   F

F. (Ω is a sample space $\land A$ is an event of Ω $\land$ p is a probability distribution on Ω })
    $\Rightarrow p$ is a set

    T   F

G. (Ω is a sample space $\land A$ is an event of Ω $\land$ p is a probability distribution on Ω })
    $\Rightarrow p(A)$ is a set

    T   F

H. (Ω is a sample space $\wedge A$ is an event of $\Omega \wedge p$ is a probability distribution on Ω })
$\Rightarrow A$ is the domain of p

T F

I. Results from an interval measurement can tenably interpreted as if they were ratio.

T F

J. Measurement relevance is a sufficient condition for measurement reliability.

T F

K. ($A, B \in$ { non-empty subsets of Ω $\wedge$ A and B are mutually-exclusive relative to one another) $\Rightarrow$ A and B are independent of one another.

T   F

L. ($D \in$ { finite sets } $\wedge$ $t \in$ { permutations of D }) $\Rightarrow t \in$ { finite sets }

T   F

M. ($n, r \in \omega$ $\ni r \le n$) $\Rightarrow$ $\binom{n}{r} \in$ { finite sets }

T   F

3. Fawn teaches an ESOL (English for speakers of other languages) to 30 students. Five of the students only write in Portuguese, 10 only write in Korean, and 15 only write in Spanish. She finds a document belonging to one of the students but she doesn't know whom. The document is not related to the class, so she doesn't think she should read it but she readily sees that it is not written in Korean. Address the following question and display your computation: What is the probability that it is written in Portuguese?

4.   Three experiments are conducted:

Experiment 1: One card is randomly drawn from a well-shuffled poker deck consisting of 52 cards – no jokers).

Experiment 2: A ball is randomly drawn from an urn that contains exactly 4 black balls, 3 green balls, 3 yellow balls, and 2 orange balls.

Experiment 3: Experiments 1 and 2 are combined.

What is the probability that Experiment 3 results in the event that an ace is drawn and a black ball is drawn?

Please display the computation that led to your solution.

5.   When you completed our homework assignment for Meeting #1, you described an experiment in response to the following prompt:

E.* Design and describe an experiment that addresses a question about future events. The question should involve a prediction about some population – not about some unique individual member of that population. For example, rather than designing an experiment to help predict whether Jim becomes infected with COVID 19 before August 5, design an experiment to predict whether at least one member of our Math 5710 family will be infected with COVID 19 before August 5. Please post the resulting document (as a PDF file) on the indicated *Assignment* link of *Canvas*.

Although you've already posted your description on the Canvas Assignment link, please either paste it herein or attach it to this document; and then respond to the following prompt:

Write a paragraph that explains how your experiences in Math 5710 up to this point in time have influenced how you would approach or modify your Homework #1-related experiment.

6.   Smile you finished taking advantage of Opportunity #3.