Economics 3 Dr. Tom Means

Exam #1 Fall 2012

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Instructions.** Print name above and return exam when finished. Do all of the problems in numerical order. Show all of your work. **Answers without work or an adequate explanation will receive no credit.** Partial credit awarded when appropriate.

1. Four die are tossed 11 times. The sum is reported and the following data is recorded:

13, 16, 20, 14, 18, 11, 15, 13, 17, 4, 24.

Calculate the following sample statistics. **Be sure to provide a formula or an explanation for your answer.**

(2) a. Sample mean? (2) d. Sample range?

(2) b. Sample median? (2) e. Sample variance?

(2) c. Sample mode?

2. California voters will vote on Proposition 32 this November, which will only raise taxes on the richest 1% of Californians. Polls show that 80% of registered Democrats favor the proposition, while only 20% of registered Republicans and 40% of registered Independents favor the proposition. The state distribution of party affiliation is 35% Democrat, 25% Republican, and 30% Independent.

(5) a. What is the probability that someone picked at random favors Proposition 32?

(5) b. Suppose a randomly selected person does not favor the proposition. What is the probability that they are registered as an Independent?

(5) c. What is the probability that someone randomly selected is a Republican or favors the proposition?

3. An urn contains 7 green balls and 3 red balls. Four balls are drawn randomly **with replacement**.

(5) a. Find the probability of drawing exactly three green balls?

(5) b. Find the probability of drawing at least one green ball?

(5) c. Find the probability of drawing exactly two green balls when the drawings are done **without replacement**?

4. Tom’s Hof Brau offers extra value dinner meals, which include your choice of main entree sandwich, 2 side orders and a drink. There are 7 types of main entrée’s, 9 different side orders and 5 types of beverages.

1. (5) How many dinners are possible if you cannot select the same side dish and order is not important?
2. (5) How many dinners are possible is you can select the same side dish and order is important?

5. Let Z be a random variable with the following probabilities.

Z 0 10 20 30 40 50

P(Z) .25 .25 .20 .15 .10 .05

(10) a. Calculate the expected value () and variance 2) of Z?

6. Calculate the following probabilities.

(5) a. You draw two cards (w/o replacement) from a standard 52-card deck. What is the probability of drawing the ace of spades?

(5) b. You draw one card from a standard 52-card deck. What is the probability of drawing a spade or a non-face card?