Senior High School Department
Statistics and Probability
SY 2019-2020
Second Periodic Examination

Name:_____ Date: _____Score: 100

Grade and Section: _____ Parent's Signature:_____.

Teacher: Ms. Nicole Raye D. Sanchez Approved by:_____

I. Directions: Read each item carefully. Write the term or words that best describe each of the following. Write your answers on the space provided. (10pts.)

_____1. It is the process of selecting a representative sample from the entire population.
_____2. This kind of random sampling is also called as area sampling.
_____3. This is the set of values that separates the rejection and acceptance regions.
_____4. It is a random sampling technique formula used to estimate the sampling size.
_____5. It is concerned with finding the value or range of values of an unknown parameter.
_____6. It is the precision or range of a point estimate.
_____7. It is a tentative explanation, a claim, or assertion about people, objects or events.
_____8. Type of hypothesis that is denoted by H_0 where H stands for "hypothesis" and the subscript *0* implies "zero difference" or "no difference".
_____9. Known as research hypothesis and what the researcher believed to be true when null hypothesis is turned out false.
_____10. Type of hypothesis test where the rejection region lies on both end tails of the distribution, one on the left and one on the right.

II. Directions: Read each item carefully. Write T if the following statement is correct, otherwise CHANGE the underlined word to make the statement true. (20pts)

_____1. A subset of the population from which data is collected is called sample.
_____2. Stratified sampling is a sampling method wherein each element of the population has an equal chance of being chosen to represent the population.
_____3. Simple random sampling is a random sampling that divides a population into different homogeneous subgroups.
_____4. Sampling by taking every k^{th} element in the population is called systematic sampling.
_____5. The most common used of cluster sampling is the lottery method.
_____6. The numerical measure of the sample is called sample size.
_____7. The used of one-tailed and two tailed-test depend on the way the null hypothesis is formulated.
_____8. Hypothesis testing is a procedure in making decisions based on a sample evidence to determine whether the null hypothesis is rejected or accepted.
_____9. Two ways to estimate the population mean are point estimator and interval estimator.
_____10. Proportion stratified sampling is used when the population is divided into strata with common characteristics and if we decide to get an equal number of samples from each stratum.

III. Directions: Identify the type of sampling technique used in each of the following situations. Write only the letter of your answer on the space provided. (10pts)

A - Simple Random Sampling
B - Systematic Random Sampling
C - Stratified Random Sampling
D - Cluster Random Sampling

_____1. The office clerk gave the researcher a list of 100 employees. The researcher selected every 5th name on the list.

_____2. A statistician selected a sample of 100 high school students from a private school with 2,500 students. He randomly select the students by lottery method.

_____3. A researcher interviewed 5 teachers from each schools in the province of Cavite for his research on the K-12 Curriculum.

_____4. A researcher randomly selected 50 students in a school for her study. She did this by writing all the names of the students on a piece of paper which she folded, put in a box and then draw 50 pieces of paper from the box.

_____5. A teacher who is conducting a research divide her students according to gender. Then randomly select 10 students from the each group.

_____6. A researcher surveyed 2 teachers from 5 randomly selected schools in Tagaytay.

_____7. A researcher who is studying the effects of social media on one's self-esteem conducted a survey of 10 randomly selected students from each year level.

_____8. A researcher is doing a research on the students' reaction to the social media and interviewed every 10th student from the list.

_____9. A researcher interviewed 10 Grade11 students in each of 15 randomly selected private schools in Cavite.

_____10. A teacher asked his students to fall in line. He instructed one of them to select every 3rd students on the line.

IV. Directions: Perform the indicated operation for each of the following. Show your complete solution and write your answers on the space provided.

A. Sample Size (10pts)

Determine the appropriate sample size needed for a study given the following population size and margin of error.

_____1. Population size of 200 with margin of error of 5%

_____2. Population size of 1000 with margin of error of 2%

_____3. Population size of 175 with margin of error of 1%

_____4. Population size of 100 with margin of error of 10%

_____5. Population size of 350 with margin of error of 5%

B. Point Estimate (6pts)

The following are the scores in a test of 10 randomly selected Grade 11 students in Statistics: 10, 12, 16, 11, 15, 18, 14, 13, 17 and 19. Solve for the,

1. Sample mean: _____
2. Sample Variance: _____
3. Sample Standard Deviation: _____

Estimate the sample mean, sample variance and sample standard deviation for the finite population of grades of Grade 11 in Statistics 84, 86, 84, 92, 78, 87, 79 and 90.

4. Sample mean: _____
5. Sample Variance: _____
6. Sample Standard Deviation: _____

C. Interval Estimate (4pts)

A marketing researcher randomly selects 20 female students in a certain university and found out that their mean monthly expenditures for their cell phone load is Php 500 with standard deviation of Php 75.

7. Find the 99% confidence interval.

8. Compute the confidence interval with 5% level of significance.

A random sample of 100 registered voters in a certain city were asked if they are going to vote for Candidate A for senatorial position in the upcoming national election. Sixty-five of the sample voters said that they will vote Candidate.

9. Establish a 90% confidence interval on the proportion of registered voters who intend to vote CandidateA.

10. Solve for the confidence interval with 1% level of significance.

D. Hypothesis Testing (30pts)

The cashier department claims that the mean salary of their employees is Php 22 500.00 with a standard deviation of Php 7 000.00. A researcher takes a random sample of 80 employees and found out that they have a mean monthly salary of Php 18 750.00. Is the claim true that the mean monthly allowance of employees Php 22,500.00? Test the claim at 5% level of significance.

I. Problem: (2pts.)

II. Hypothesis: (2pts.)

III. Level of Significance: (2pts.)

IV: Computation: (3pts.)

V. Decision: (3pts.)

VI: Conclusion: (3pts.)

The supervisor of ABC Company claims that the mean weight of their laundry product is 350 grams. A group of student researchers randomly selected 35 packs of their product and found out that the mean weight is 345 grams with a standard deviation of 20 grams. Test the claim that $\mu = 350$ at $\alpha = 0.01$.

I. Problem: (2pts.)

II. Hypothesis: (2pts.)

III. Level of Significance: (2pts.)

IV: Computation: (3pts.)

V. Decision: (3pts.)

VI: Conclusion: (3pts.)

E. Pearson Product Moment Correlation Coefficient (10pts)

1. The table below shows the time in hours *(x)* spent by six students playing computer games and the scores these got on a math test. Solve for Pearson Product Moment Correlation Coefficient.

x	1	2	3	4	5	6
y	30	25	25	10	15	5

Solution:

2. The table below shows the number of selfies posted online (x) and the scores obtained from a Science test *(y).* Solve for the Pearson's Correlation, *r.*

x	1	2	3	4	5	6
y	25	5	20	40	25	9

Solution:
