



Sinalhan Senior High School
Midterm Examination in Statistics and Probability

Name: _____ Score: _____
Year and Section: _____ Date: _____

- I. Write the letter of the correct answer on the space provided. (20 pts.)
- _____ 1. Which of the following is a discrete random variable?
a. The average amount of electricity consumed b. The number of patients in a hospital
c. The amount of paint used in repainting a building d. The average weight of female athletes
- _____ 2. If two coins are tossed, which is not a possible value of the random variable for the number of heads?
a. 0 b. 1 c. 2 d. 3
- _____ 3. Which of the following is NOT a true statement?
a. The value of a random variable could be zero.
b. Random variables can only have one value.
c. The probability of the value of a random variable could be zero.
d. The sum of all the probabilities in a probability distribution is always equal to one.
- _____ 4. Which formula gives the probability distribution shown by table?
- | | | | |
|------|---|---|---|
| X | 2 | 3 | 6 |
| P(x) | 3 | 2 | 1 |
- a. $P(X) = 1/x$ b. $P(X) = x/6$ c. $P(X) = 6/x$ d. $P(X) = 1/6$
- _____ 5. If $P(X) = x/6$, what are the possible values of X for to be a probability distribution?
a. 0,2,3 b. 1,2,3 c. 2,3,4 d. 1,1, 2
- For numbers 6 – 8, refer to the probability distribution shown below.
- | | | | | |
|------|-----|-----|-----|-----|
| X | 0 | 1 | 2 | 3 |
| P(X) | 1/8 | 3/8 | 3/8 | 1/8 |
- _____ 6. What is the mean of the probability distribution?
a. 1.5 b. 1.2 c. 1.6 d. 1.8
- _____ 7. What is the variance of the probability distribution?
a. 0.75 b. 1.00 c. 1.25 d. 0.50
- _____ 8. What is the standard deviation of the probability distribution?
a. 1.00 b. 0.87 c. 1.12 d. 0.71
- For numbers 9 – 10, refer to probability distribution shown below.
- | | | | | | |
|------|-----|-----|-----|-----|-----|
| X | 0 | 2 | 4 | 6 | 8 |
| P(X) | 1/5 | 1/5 | 1/5 | 1/5 | 1/5 |
- _____ 9. What is the mean of probability distribution?
a. 1.5 b. 2.0 c. 3.5 d. 4.0
- _____ 10. What is the variance of the probability distribution?
a. 4.15 b. 6.35 c. 8.00 d. 7.50
- _____ 11. Which of the following statement is correct?
a. The mean of the sampling distribution of the means is less than the population mean.
b. The mean of the sampling distribution of the sample means is greater than the population mean.
c. The mean of the samples drawn from a population are always equal to the population mean.
d. The means of the samples drawn from a population may be equal, greater than or less than the population mean.
- _____ 12. A certain population has a mean of 15.4 and a standard deviation of 5.6. If a random samples of size 5 is taken from this population, which of the following is correct?
a. The mean of sampling distribution of the sample mean is equal to 15.4.
b. The mean of the sampling distribution of the sample means is less than 15.4
c. The standard deviation of the sampling distribution of the sample mean is 5.6.
d. The standard deviation of the sampling distribution of the sample means is 15.4.
- _____ 13. How many possible of size $n = 3$ can be drawn from a population of size 12?
a. 36 b. 1,728 c. 144 d. 220

- _____14. What is the shape of the sampling distribution of the means if random sample of size variable n become larger?
a. left skewed b. right skewed c. normal d. rectangular
- _____15. If the variance of the population is 10, what is the variance of the sample distribution of the means of size 5 drawn from this population?
a. 2 b. 4.47 c. 1.41 d. 10
- _____16. Which sample size will give a smaller standard error of the mean?
a. 12 b. 20 c. 25 d. 35
- _____17. What is the finite population correction factor if the size of the population is 200 and the sample size is 25?
a. 0.979 b. 0.879 c. 0.938 d. 0.856

From the numbers 18 – 20, refer to the problem below.

The average precipitation for the first 7 months of the year is 19.32 inches with a standard deviation of 2.4 inches. Assume that the average precipitation is normally distributed.

- _____18. What is the probability that a randomly selected year will have precipitation greater than 18 inches for the first 7 months?
a. 0.7088 b. 0.8523 c. 0.4562 d. 0.1258
- _____19. What is the average precipitation of 5 randomly selected years for the 7 months?
a. 19.32 inches b. 22.4 inches c. 20.52 inches d. 15.56 inches
- _____20. What is the probability of 5 randomly selected years will have an average precipitation greater than 18 inches for the first 7 months?
a. 0.8907 b. 0.2587 c. 0.4156 d. 0.2879

B. Identify whether the given variable is discrete or continuous. Write “Kapuso” if it is discrete and “Kapamilya” if it continuous. Write your answer on the blank before each item. (5 pts.)

- _____1. The number of books in the library.
- _____2. The lifetime in hour of 15 flashlights.
- _____3. The number of tourists each day in museum.
- _____4. The capacity of water dams in a region.
- _____5. The weight of grade 1 pupils.

C. Find the mean, variance and standard deviation of the following probability distributions. (5 pts.)

X	1	6	11	16	21
P(X)	1/7	1/7	2/7	1/7	2/7

D. Given the population of 5,000 scores with $\mu = 86$ and $\sigma = 10$. How many scores are; (10 pts.)
A. Between 96 to 106? B. middle 50% of the distribution?

E. How many different samples of size $n = 3$ can be selected from a population with the following sizes? (5 pts.)

- a. $N = 4$ b. $n = 8$ c. $n = 40$ d. $n = 45$ e. $n = 27$

F. Problem Solving: In a job fair, 3,000 applicants applied for a job. Their mean age was found to be 28 with a standard deviation of 4 years. (5 pts.)

- a. How many applicants are below 20 years old?
- b. Between 24 to 36 years old?

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