1. When the items included in a sample are based on the judgment of the individual conducting the sample, the sample is said to be nonrandom.
2. A statistic is a characteristic of a population.
3. A sampling plan that selects members from a population at uniform intervals in time, order, or space is called stratified sampling.
4. As a general rule, it is not necessary to include a finite population multiplier in a computation for standard error of the mean when the size of the sample is greater than 50.
5. The probability distribution of all the possible means of samples is known as the sample distribution of the mean.
6. The principles of simple random sampling are the theoretical foundation for statistical inference.
7. The standard error of the mean is the standard deviation of the distribution of sample means.

8. A sampling plan that divides the population into well-defined groups from which random samples are drawn is known as cluster sampling.
9. With increasing sample size, the sampling distribution of the mean approaches normality, regardless of the distribution of the population.
10. The standard error of the mean decreases in direct proportion to sample size.
11. To perform a complete enumeration, one would need to examine every item in a population.
12. In everyday life, we see many examples of infinite populations of physical objects.
13. To obtain a theoretical sampling distribution, we consider all the samples of a given size.

14. Large samples are always a good idea because they decrease the standard error.
15. If the mean for a certain population were 15, it is likely that most of the samples we could take from that population would have means of 15.
16. The precision of a sample is determined by the number of items in the sample and not the proportion of the total population that is sampled.
17. The standard error of a sample statistic is the standard deviation of its sampling distribution.
18. Judgment sampling has the disadvantage that it may lose some representativeness of a sample.
19. The sampling fraction compares the size of a sample to the size of the population.
20. Any sampling distribution can be totally described by its mean and standard deviation.
21. The precision with which the sample mean can be used to estimate the population mean decreases as the standard error increases.
22. Which of the following is a method of selecting samples from a population?
    (a) Judgment sampling.
    (b) Random sampling.
    (c) Probability sampling.
    (d) All of these.
    (e) (a) and (b) but not (c).

23. Choose the pair of symbols that best completes this sentence:
_____ is a parameter, whereas _____ is a statistic.
(a) N, μ.
(b) σ, s.
(c) N, n.
(d) All of these.
(e) (b) and (c) but not (a).

24. In random sampling, we can describe mathematically how objective our estimates are. Why is this?
(a) We always know the chance that any population element will be included in the sample.
(b) Every sample always has an equal chance of being selected.
(c) All the samples are of exactly the same size and can be counted.
(d) None of these.
(e) (a) and (b) but not (c).

25. Suppose you are performing stratified sampling on a particular population and have divided it into strata of different sizes. How can you now make your sample selection?
(a) Select at random an equal number of elements from each stratum.
(b) Draw equal numbers of elements from each stratum and weigh the results.

(c) Draw numbers of elements from each stratum proportional to their weights in the population.
(d) (a) and (b) only.
(e) (b) and (c) only.

26. In which of the following situations would $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$ be the correct formula to use for computing $\sigma_{\bar{x}}$?
(a) Sampling is from an infinite population.
(b) Sampling is from a finite population with replacement.
(c) Sampling is from a finite population without replacement.
(d) (a) and (b) only.
(e) (b) and (c) only.

27. The dispersion among sample means is less than the dispersion among the sampled items themselves because
(a) Each sample is smaller than the population from which it is drawn.
(b) Very large values are averaged down and very small values are averaged up.
(c) The sampled items are all drawn from the same population.
(d) None of these.
(e) (b) and (c) but not (a).

28. Suppose that a population with $N = 144$ has $\mu = 24$. What is the mean of the sampling distribution of the mean for samples of size 25?
(a) 24.
(b) 2.
(c) 4.8.
(d) Cannot be determined from the information given.

29. The central limit theorem assures us that the sampling distribution of the mean
    (a) Is always normal.
    (b) Is always normal for large sample sizes.
    (c) Approaches normality as sample size increases.
    (d) Appears normal only when N is greater than 1,000.
30. Suppose that, for a certain population, $\sigma_{\bar{x}}$ is calculated as 20 when samples of size 25 are taken and as 10 when samples of size 100 are taken. A quadrupling of sample size, then, only halved $\sigma_{\bar{x}}$. We can conclude that increasing sample size is
    (a) Always cost-effective.
    (b) Sometimes cost-effective.
    (c) Never cost-effective.
31. Refer again to the data of Question 30. What must be the value of σ for this infinite population?
    (a) 1,000.
    (b) 500.
    (c) 377.5.
    (d) 100.
32. The finite population multiplier does not have to be used when the sampling fraction is
    (a) Greater than 0.05.
    (b) Greater than 0.50.
    (c) Less than 0.50.
    (d) Greater than 0.90.
    (e) None of these.

33. The standard error of the mean for a sample size of two or more is
    (a) Always greater than the standard deviation of the population.
    (b) Generally greater than the standard deviation of the population.
    (c) Usually less than the standard deviation of the population.
    (d) None of these.
34. A border patrol checkpoint that stops every passenger van is using
    (a) Simple random sampling.
    (b) Systematic sampling.
    (c) Stratified sampling.
    (d) Complete enumeration.
35. In a normally distributed population, the sampling distribution of the mean
    (a) Is normally distributed.
    (b) Has a mean equal to the population mean.
    (c) Has a standard deviation equal to the population standard deviation divided by the square root of the sample size.
    (d) All of the above.
    (e) Both (a) and (b).

36. The central limit theorem
    (a) Requires some knowledge of the frequency distribution.
    (b) Permits us to use sample statistics to make inferences about population parameters.
    (c) Relates the shape of a sampling distribution of the mean to the mean of the sample.
    (d) Requires a sample to contain fewer than 30 observations.

37. A portion of the elements in a population chosen for direct examination or measurement is a _____.

38. The proportion of the population contained in a sample is the _____.

39. _____ is the process by which inferences about a population are made from information about a sample.

40. The _____ is the distribution obtained by finding the sampling distribution of all samples of a given size of a population.

41. _____ sampling should be used when each group considered has small variation within itself but there is wide variation between different groups.

42. A method of random sampling in which elements are selected from the population at uniform intervals is called _____ sampling.

43. _____ is the degree of accuracy with which the sample mean can estimate the population mean.

44. Within a population, groups that are similar to each other (although the groups themselves have wide internal variation) are called _____.

45. A sampling distribution of the proportion is a probability distribution of the _____.