NAME _____

TRENT UNIVERSITY
Faculty of Arts and Science
Final Examinations – 2000/2001
MATHEMATICS 150

PART A: Time: 30 minutes
No aids allowed.   Each question is worth 2 marks
For each question circle the letter [a), b), etc.] corresponding to the correct answer.

1. For a data set to be a population, it must be large.
a) true   b) false

2. The notation to represent the third order statistic for a set of 10 x's is
a) x_3 c) $x_{(3)}$
b) $x_{0.3}$

3. If a large data set is positively skewed, then a smooth curve representation of the frequency distribution for the data set will be stretched out to the
a) left
b) right

4. The value of the standard deviation for a set of 12 data values will be the same numerical value whether the data set is considered to be a population or a sample.
a) true   b) false

5. The points plotted for each data set in a mean and standard deviation display are
a) the first quartile, the mean, the third quartile
b) the mean, the standard deviation
c) the mean minus the standard deviation, the mean, the mean plus the standard deviation
d) the minimum, the standard deviation, the mean, the maximum

6. Usually, comparison histograms should have bar heights equal to
a) class frequencies
b) cumulative class frequencies
c) class relative frequencies (i.e. percentages of data sets in each class)
d) square roots of class frequencies

7. To compare proportional splits across political parties for samples from three communities, we use a
a) comparison rose diagram
b) cross-tabulation display
c) multiple box-and-whisker plot

8. For regression through the origin, we use ordinary regression to calculate b_1 and then set $b_0 = 0$.
a) true   b) false

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9. In a multiplicative time series model, the mean of the seasonal factors for all of the seasons in a basic time unit (eg for all of the months in a year) should be equal to
a) 0   b) 1

10. If A and B and C are mutually exclusive, then $P[A$ or B or $C]$ is equal to
a) 0   c) $P[A] \times P[B] \times P[C]$
b) $P[A] + P[B] + P[C]$ d) 1

11. In order to find the number of possible samples of 50 members taken without replacement from a population of 300 members, it is appropriate to use
a) combinations   b) permutations
c) the multiplication rule for independent trials

12. If we are going to choose a simple random sample of 400 students from a full population of 6709 students of whom 4034 are receiving some form of financial assistance and 2675 are not, then, to find the probability that the sample will include 250 are receiving some assistance, we use the
a) binomial approximation for hypergeometric probability
b) normal approximation for hypergeometric probability
c) Poisson approximation for binomial probability

13. An unbiased estimator for a parameter
a) is always equal to the parameter   d) may never equal the parameter
b) is always close to the parameter   e) c) and d)
c) is equal to the parameter "on the average"

14. If L and U are the lower and upper limits of a 95% confidence interval for a parameter, then the odds in favour of having the parameter between L and U are
a) 19 to 1   c) 95 to 1
b) 20 to 1   d) not known until L and U are calculated from the sample data.

15. In a statistical hypothesis test, a type II error is the
a) acceptance of a false null hypothesis   c) rejection of a true null hypothesis
b) level of significance

16. To test the null hypothesis that the ***variances*** of two normal populations are equal, we test the null hypothesis that
a) their difference is 0   b) their ratio is 1

17. When a contingency table is used to investigate the possibility of a relationship between two qualitative attributes of the members of a population, the ***alternative*** hypothesis is that the attributes are
a) associated   b) equal "on the average"   c) independent

18. Analysis of variance is used to test the possible equality of several population
a) means   b) variances   c) proportions