

NAME _____

TRENT UNIVERSITY
Faculty of Arts and Science
Final Examinations – 1999/2000
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.

- To be a sample, a data set must include only a small number of values.
 - true
 - false
- If we classify sample survey respondents according to their political party preference so that the 'value' assigned to each respondent is *bloc*, *conservative*, ..etc., *unknown*, then the resulting data are said to be
 - continuous
 - qualitative
 - quantitative
 - ratio scale
- For a data set that could be a sample or population, the *population* variance σ^2 is
 - equal to the *sample* variance s^2
 - larger than the *sample* variance s^2
 - smaller than the *sample* variance s^2
- If the values in a data set are the numbers of typographical errors on various pages of a newspaper, then the data are
 - continuous
 - discrete
- A two-directional comparison with a cross-tabulation display
 - is based only on row **or** column percentages
 - is based only on row **and** column percentages
 - may involve percentages of the total count as well as row and column percentages
- If the *expression* $y = b_0 + b_1x$ for a simple linear regression is to be changed to the *expression* for regression through the origin, then
 - $b_0 = 0$
 - $b_1 = 0$
 - $b_1 = 1$
- The coefficient of multiple determination may be used
 - to measure the degree of linearity for an "ordinary" multiple regression but not a polynomial
 - only to measure the strength of relationship in the linear part of a polynomial regression
 - to measure the strength of the relationship for a polynomial regression as well as to measure the degree of linearity of an "ordinary" multiple regression
- If the odds against A are 9 to 4, then $P[A]$ is.
 - 4/9
 - 4/13
 - 9/20

OVER

9. If CD is the current dollar value of an item, RD is the real dollar value of the item for the same time, $CPI[B]$ is the CPI for the base period and $CPI[C]$ is the CPI for the current period, then
- $RD = CD \times (CPI[B]/CPI[C])$
 - $RD = 100 \times CD \times (CPI[C]/CPI[B])$
 - $RD = CD / CPI[C]$
10. In order to obtain a first estimate of sick days in 48 companies, an auditor will sample ten of the 48. To determine how many possible different samples there are, the auditor should use
- combinations
 - permutations
 - the multiplication rule for independent trials
11. The cumulative probability distribution function $F_X(x)$ for a random variable X produces
- $P[X = x]$
 - $P[X \leq x]$
 - $P[X > x]$
12. If we consider all possible simple random samples from a population, then the mean of the corresponding sampling distribution for the sample mean, is equal to the population mean
- true
 - false
13. If we increase the size of a sample, then we should anticipate that the standard error of an estimator that is to be calculated from the sample data will
- decrease
 - increase
 - not change
14. In a statistical hypothesis test, a type I error is the
- acceptance of a false null hypothesis
 - level of significance
 - rejection of a true null hypothesis
15. To test the null hypothesis that the *variances* of two normal populations are equal, we test the null hypothesis that
- their difference is 0
 - their ratio is 1
16. A test of equality of two population “success” proportions based on *dependent* before-after samples is based on testing $H_0: \pi_c = 0.5$ where π_c is
- the proportion of the total sample who make a change
 - the proportion of the “changers” who make the change from “failure” to “success”
 - the ratio of “changers” to “non-changers”
17. If a computer printout produces a test statistic F with a two-sided P -value of 0.0214, and if the printout is to be used in a statistical hypothesis test with a two-sided alternative and with F as the appropriate test statistic and with level of significance $\alpha = 0.05$, then the null hypothesis should be
- accepted
 - rejected
18. Analysis of variance is used to test the possible equality of several population
- means
 - variances
 - proportions