Pre-course assessment

Each branch is either true or false (could be all true or all false)

1) When testing a new medical treatment, suitable control groups include patients who:
   a) are treated by a different doctor at the same time;
   b) are treated in a different hospital;
   c) are not willing to receive the new treatment;
   d) were treated by the same doctor in the past.

2) In simple random sampling:
   a) each member of the population has an equal chance of being chosen;
   b) likely errors cannot be estimated;
   c) each possible sample of the given size has an equal chance of being chosen;
   d) the decision to include a subject in the sample depends only on the subject's own characteristics.

3) Advantages of random sampling include:
   a) it can be applied to any population;
   b) likely errors can be estimated;
   c) it is not biased;
   d) the sample can be referred to a known population.

4) Which of the following are qualitative variables:
   a) sex;
   b) blood glucose;
   c) peak expiratory flow rate;
   d) exact age.

5) Which of the following are continuous variables:
   a) blood glucose;
   b) family size;
   c) peak expiratory flow rate;
   d) exact age.

6) After treatment with Wondermycin, 66.67% of patients made a complete recovery
   a) this statement may be misleading because the denominator is not given;
   b) the number of significant figures used suggest a degree of precision which may not be present;
   c) some control information is required before we can draw any conclusions about Wondermycin;
   d) there might be only a very small number of patients.

7) The number 1729.54371:
   a) to two significant figures is 1700;
   b) to six decimal places is 1729.54;
   c) to three decimal places is 1729.544;
   d) may consist of things which do not actually exist.

8) In statistical terms, a population:
   a) consists only of people;
   b) may be infinite;
   c) can be any set of things in which we are interested;
   d) may consist of things which do not actually exist.

9) The smaller the variance the less spread of the data around the mean
   a) True
   b) False

10) Given a sample of 5 observations, 5, 4, 2, 5, 4, calculate the mean ($\bar{x}$) and the median.
   a) 4.5 and 5
   b) 4 and 5
   c) 4 and 4
   d) 11/3 and 4.5

11) Given a sample of 5 observations, 5, 4, 2, 5, 4, calculate the sample standard deviation, s

$$= \sqrt{\frac{\sum(x_i - 4)^2}{5 - 1}}$$

   a) 1.23
   b) 0
   c) 8
   d) 1.22

12) Testing the effect of a new drug gives a p-value=4%:
   a) the effect is only 4% of the effect of the standard drug;
   b) there is 96% probability that there is no effect of the new drug;
   c) the result of the test is statistically significant at 5% significant level;
   d) the result of the test is statistically significant at 2% significant level but not at 5% significant level.