

Pre-course assessment – correct answers

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

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

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

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

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

- 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; **T**
 - b) the number of significant figures used suggest a degree of precision which may not be present; **T**
 - c) some control information is required before we can draw any conclusions about Wondermycin; **T**
 - d) there might be only a very small number of patients. **T**

- 7) The number 1729.54371:
- a) to two significant figures is 1700; **T**
 - b) to six decimal places is 1729.54; **F**
 - c) to three decimal places is 1729.544; **T**
 - d) may consist of things which do not actually exist. **T**
- 8) In statistical terms, a population:
- a) consists only of people; **F**
 - b) may be infinite; **T**
 - c) can be any set of things in which we are interested; **T**
 - d) may consist of things which do not actually exist. **T**

- 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 **F**
 - b) 4 and 5 **F**
 - c) 4 and 4 **T**
 - d) 11/3 and 4.5 **F**

- 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 **F**
 - b) 0 **F**
 - c) 8 **F**
 - d) 1.22 **T**
- 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; **F**
 - b) there is 96% probability that there is no effect of the new drug; **F**
 - c) the result of the test is statistically significant at 5% significant level; **T**
 - d) the result of the test is statistically significant at 2% significant level but not at 5% significant level. **F**