

EXAMPLES OF MULTIPLE CHOICE QUESTIONS (MCQ)

The following MCQ of the ECVPH Exam question database illustrate good questions according to the NBME Guidelines.

POPULATION MEDICINE

- 1) You apply a new test to serum taken from a 200 horses to detect infection with a virus. Test results were positive in 60 of these horses but only 40 of the 60 were found to harbour the virus when viral cultures were performed (viral isolation is considered to be the Gold Standard). When samples were cultured from test negative horses, 10 returned a positive culture. Assume the 200 horses were representative of the population that exists in your practice region. You want use this test to screen all horses in your practice. What percentage of horses that test positive would you expect to be false positives?
- 87%
 - 80%
 - 33.3%
 - 66.6%

Note: This question requires application of knowledge, so elicits higher order thinking. However, a test-wise student would deduce that the correct answer must be either c. or d. because they are related. So the distractors should be improved.

- 2) Which statistical test would you choose to test the null-hypothesis: breed (German Sheperd, Border Collie, English Setter) is not associated with disease status?
- T-test
 - Chi-squared test
 - Wilcoxon rank-sum test
 - Anova test

Note: This question has a negative in the stem "not associated". Negative wordings should be avoided. This could easily be improved by removing "not", asking "to test if breed is associated with disease status".

- 3) To obtain a representative sample of cows in a large farm a list of random numbers was used to select 40 cows, based on ear tag numbers. When attempting to sample the selected cows, 3 could not be found. What is the recommended course of action?
- ask the farmer to indicate three of his most representative cows (in terms of the studied characteristic) to include in the sample
 - select yourself three cows that could give a good representation of the 2 extremes and of the average of the studied characteristic
 - obtain 3 additional cows based on additional random numbers
 - use twice the data from 3 of the 37 initially sampled cows

Note: This question requires practical application of knowledge.

- 4) In a population of 1,000 cattle tested for *Brucella abortus*, 5 positives are identified using a perfect test. What is the sensitivity of the test being used?
- 0.5%
 - 99.5%
 - 100%
 - Cannot be determined

Note: This question tests comprehension of terminology. Option d. could be refined.

- 5) In a case-control study of tuberculin skin-test reactivity within a bovine population in a certain region, what is the most appropriate measure of association between sex and reactivity?
- Incidence ratio
 - Relative risk
 - Odds ratio
 - Attack rate

- 6) If the TRUE prevalence of a disease in a population is 10%, the sensitivity of a diagnostic test is 90% and the specificity is 80%, what is the positive predictive value of the test?
- 53%
 - 47%
 - 33%
 - 82%

Note: This question requires application of knowledge, so elicits higher order thinking. However, it requires to have the formula memorized. The stem could be improved with numbers, so the student can more easily complete a 2*2 table, calculating PPV from these values. Also, the word "TRUE" does not need highlighting, and can be given in the text as "true".

- 7) A diagnostic test with 95% sensitivity and 90% specificity is used in a population of 1000 animals, of which 10% are truly diseased. How many test-positive results will be seen?
- 185
 - 95
 - 950
 - 100

Note: Testwise students would go for either 95 ou 950...

FOOD SCIENCE

- 1) A batch of vacuum packaged, sliced saveloy with 10^5 (100.000) colony forming units per gram lactobacilli and 10^4 (10.000) colony forming units per gram Lancefield group D streptococci
- should be considered as produced from meat that was tainted with fecal material
 - should be declared unfit for human or animal consumption
 - should be considered as being at the threshold of spoiled
 - should be considered as a product that is within parameters and fit for human consumption

Note: Good stem with real-life scenario, requiring to apply knowledge. Improve with lead-in as question. Ex: "..... D streptococci. What would be the right decision/interpretation? A. The saveloy was produced from meat.... Etc.". The wording of all options must be adjusted to answer the question.

- 2) Name the Regulation laying down methods of sampling and analysis for the official control of levels of dioxins and dioxin-like PCBs in certain foodstuffs
- 1881/2006
 - 1883/2006
 - 1884/2006
 - 1885/2006

Note: Poor stem. Improve by giving a real-life scenario, and then ask which Regulation applies. In the options use correct format: "Commission Regulation (EC) No 1881/2006" not just the number.