

GHEP-ISFG Forensic Advanced Theoretical Challenge 2025

Questionnaire: *Multiple choice questions on theoretical expectations*

1. Laboratory ID:
2. What does $\Pr(a|b)$ mean?
 - A. The probability that b or a is true
 - B. The probability of a given that b is true
 - C. The probability of b given that a is true
 - D. The probability that b and a are true
 - E. I do not know
3. Which statement is correct?
 - A. The probability **that** the stain came from Mr Green is x times more likely than **that** it came from an unknown unrelated individual.
 - B. The probability of the evidence is x times more likely **if** the stain came from Mr Green than **if** it came from an unknown unrelated individual.
 - C. I do not know
4. What **additional** features does continuous LR software have versus semi-continuous? Multiple answers may be true.
 - A. Considers peak height information
 - B. Considers genotypic probabilities
 - C. Considers drop-out and drop-in
 - D. Considers drop-out and drop-in based on peak height models
 - E. I do not know
5. Continuous LR software is more informative than semi-continuous when (select one):
 - A. The mixture has equal contributions
 - B. The mixture has unequal contributions
 - C. I do not know
6. In which situations would it be advised to use a so-called exhaustive propositions approach/ multiple propositions approach?
 - A. In case of a very low LR
 - B. In case of multiple persons of interest
 - C. In case of using a continuous LR model
 - D. In case of multiple stain profiles
 - E. Always
 - F. I do not know, please tell me more about this approach

7. What is a so-called Top-Down approach for LR calculations?
- A. Inferring a major contributor's profile and use this in the LR calculation
 - B. Starting with a list of propositions and finding the one that best explains the data
 - C. An approach that computes LRs considering the top X contributors only
 - D. Assigning genotypes to each contributor in a mixed DNA profile
 - E. I do not know, please tell me what it is
8. What is true about non-contributor tests? (multiple answers may be true)
- A. This is a test in which the person of interest is replaced by random non-contributors and the resulting LRs are compared to the LR of the POI
 - B. This test tells you whether your LR is correct
 - C. This test demonstrates whether your LR model is well calibrated
 - D. This is a test that may help to explain to courts generally how the LR performs with respect to mathematical expectations of LR models
 - E. I do not know
9. Which aspects need to be considered during internal validation of probabilistic genotyping software? (multiple answers may be true)
- A. Develop documented validation plan
 - B. Run a lab specific dataset to demonstrate that the software performs as expected
 - C. Compare results to currently used methods
 - D. Develop standard operating procedures outlining the types of cases and data to which the software can be applied
 - E. Develop policy for training of software end users in the laboratory
 - F. Peer reviewed publication of the internal validation results
 - G. I do not know
10. If there are two suspects in a case, one is a true contributor, one is not, what is a possible risk of using a compound propositions pair like S1+S2 vs U+U? (multiple answers may be true)
- A. None in any case
 - B. None if you use an exhaustive propositions approach
 - C. The LR does not reflect the individual contribution
 - D. True contributor LRs might be understated
 - E. Non contributor LRs might be overstated
 - F. I do not know
11. Continuous LR software is more informative than semi-continuous when (multiple answers may be true):
- a. DNA profiles show degradation
 - b. Peak heights are in the stochastic range
 - c. None of the above
 - d. I do not know