

Food Safety Laboratory Capacity Building

Module 7 Quiz – Answer Key

1. Which parameter(s) affect peak height in LC? (select all that apply)

- a. Concentration
- b. Flow rate
- c. Temperature
- d. Mobile phase composition
- e. Column particle size

2. Which of these relationships apply in LC? (select all that apply)

- a. Higher pressure creates a lower temperature
- b. Higher pressure creates higher peaks
- c. Higher temperature lowers the pressure
- d. Smaller particles cause a higher pressure
- e. Larger particles cause a higher pressure

3. What is the column void time in LC?

- a. The retention time of the first peak
- b. The smallest amount of time between two peaks
- c. The time it takes for the mobile phase to pass through the column
- d. The time it takes a sample to pass through the column (Response c is the true response, but d is also acceptable (some molecules of your samples will take the same time as the mobile phase))

4. What characterizes an end-capped C18 column?

- a. Two layers of coating on each particle
- b. Core-shell particles
- c. A secondary bonding limiting silanol groups
- d. A secondary bonding freeing the silanol groups
- e. Silanol groups are stripped off the C18 column

5. Approximately how much does a temperature increase of 1°C decrease the retention time?

- a. 1 minute
- b. 1 second
- c. 1% (measured in percentage because other parameters will also influence the retention time)

6. What are the main advantages of photometric detectors? (select all that apply)

- a. High selectivity
- b. Linear response over a broad concentration range
- c. High sensitivity
- d. High cost
- e. Low cost

Responses a (not in all cases), b, c (for regulatory purposes it is a yes, but this is not valid for all purpose, ex: risk analysis), and e

7. Why is derivatization used in many fluorescence methods?

- a. To reduce fluorescence
- b. To increase fluorescence (retention time is not related as it is not the same compound that is analysed anymore)
- c. To increase the retention time
- d. To reduce the retention time

8. What can happen if your sample solvent is too different from the initial mobile phase of an LC run?

- a. Saturated peak
- b. Change in peak shape (fronting, splitting or tailing for example)
- c. Increased temperature
- d. Overlapping peaks

9. What is an advantage of a gradient run?

- a. Shorter time needed to separate analytes with very different polarity
- b. Longer retention time for components with high polarity
- c. Longer time needed to separate analytes with a very different polarity
- d. None of the above

10. Please match the cause and effect:

- | | |
|--------------------------------|------------------------|
| a. Increase column temperature | 1. Increase pressure |
| b. Decrease particle size | 2. Decrease pressure |
| c. Increase particle size | 3. Decrease resolution |

A-2; B-1; C-3