1. Which variable/s affect flavor more so than any other/s, during fermentation:
   a. Yeast strain
   b. Low Pitch Rate
   c. High Wort Gravity
   d. High aeration
   e. All the above

2. True or False
   Decreasing the fermentation temperature generally decreases most of the flavor compounds produced.

3. Which compound/s (quantitatively one of the most important products of fermentation) positively contributes to the viscosity and “body” of beer?
   a. Glycerol
   b. Ethanol
   c. Maillard Reaction Products (e.g. Melanoidins)
   d. Isoamyl alcohol
   e. All the above

4. True or False
   Yeast produces ethanol during the anaerobic phase of fermentation in order to get energy.

5. Yeast produces fusel alcohols from glucose metabolism and ______________ metabolism which usually gives a ______________ flavor? (worth 2pts)
   a. Amino acid/ smooth
   b. Amino acid/ harsh
   c. High molecular weight proteins/ smooth
   d. High molecular weight proteins/ harsh

6. You are judging a beer and you taste/feel a ‘hotness’ on your palate that you attribute to the presence of higher alcohols. Which would you indicate to the brewer on how to ‘fix’ this flaw:
   a. Increase your saccharification temperature
   b. Decrease the fermentation temperature
   c. Cool the wort quickly
   d. Don’t over crush your grist
   e. All the above

7. True or False
As yeast starts to grow and bud, the production of many different by-products increases. Among the many different chemicals produced by fermenting yeast, ester production, specifically, is directly correlated with yeast growth.

8. Reducing rate of pitching will _____________ fusel alcohol production, where increasing the amount of dissolved oxygen that is supplied to the yeast prior to fermentation will _____________ the amount of esters produced. (worth 2pts)
   a. Increase/ Increase
   b. Increase/ Decrease
   c. Decrease/ Increase
   d. Decrease/ Decrease

9. How would /can diacetyl be described?
   a. Butter
   b. Slickness on palate
   c. Toffee
   d. Milky
   e. All the above

10. Diacetyl is produced when yeast needs to make which amino acid?
A: Valine

11. True/ False
Conversion of the precursor of diacetyl (alpha acetolactate) to diacetyl is favored by a low pH and a high fermentation temperature.

12. True or False
   You can taste alpha acetolactate.