1. What is a
suitable definition of a conserved quantity?

- ○ A chemical species that is not involved in a particular chemical reaction
- ○ Something which accumulates over time
- ◉ A
quantity which is neither created nor destroyed “X”

2. What is
meant when a process is described as being “steady state”?

- ◉ All
parameters are constant with respect to time “X”
- ○ Chemical equilibrium has been reached
- ○ All variables are changing at a constant rate
- ○ All molar flow rates are constant with respect to time

3. In
microbial fermentation, which mode of operation corresponds to a steady state process?

- ◉ Continuous
operation “X”
- ○ Fed-batch operation
- ○ Batch operation

4. In
which phase of a cell culture would we expect to see the maximum growth rate?

- [x] Log "X"
- [ ] Lag
- [ ] Acceleration
- [ ] Stationary

5. Why would
we need to include a homogeniser in a recovery process?

- [ ] Because we want to separate out contaminants on the basis of size
- [x] Because
the product is intracellular "X"
- [ ] Because the product is extracellular
- [ ] Because we want to separate out contaminants on the basis of density

6. Which of
the following is not a type of chromatography used in bioprocessing?

- [ ] Hydrophobic interaction
- [ ] Ion exchange
- [ ] Size exclusion
- [x] Thin
layer "X"

7. Centrifugation
separates particles on the basis of which property?

- ○ Size
- ○ Charge
- ◉ Density
  "X"
- ○ Hydrophobicity

8. If
a chromatography unit is used to capture a desired product whilst letting contaminants flow through, which mode is it operating in?

- ◉ Bind
  and elute "X"
- ○ Size exclusion
- ○ Flow through

9. What is the main idea and driver behind the use of biocatalysis?

- ○ Availability of different modes of operation
- ◉ Cell growth and enzyme production are de-coupled from conversion
- ○ Ease of integration with biorefineries

10. How many industrial biocatalytic processes are currently in operation?

- ○ None
- ○ Less than 10
- ○ 50
- ◉ More than 150 "X"

11. What is the significance of yield as a fermentation metric in the context of the competitiveness of a process?

- ◉ Yield determines the maximum profit to be made
- ○ Yield determines the capital cost of process equipment
- ○ The process yield should be the same as the maximum theoretical yield

12. In a biocatalytic process how is yield defined?

- ○ g product/L reactor volume/time
- ◉ g product/g biocatalyst
- ○ g product /L reactor volume