



- 29)  $C_2H_5OH \xrightarrow{\text{Acetobacter}} C_2H_3OOH$   
 Ethanol                      Acetic acid  
 What can you tell me about this reaction? Is it aerobic or anaerobic.
- 30) Which group of microorganisms is most likely to spoil a freshwater trout preserved with salt
- 31) culture medium consisting of agar, human blood, and beef heart is a \_\_\_\_\_.
- 32) An experiment began with 4 cells and ended with 128 cells. How many generations did the cells go through?
- 33) The source of nutrients in nutrient agar is \_\_\_\_\_.
- 34) Assume that one culture is a freshly opened package of dried yeast with 0.1% moisture, another culture is the same yeast with 7.5% moisture, and the third culture is a package of yeast mixed with water. Each culture was exposed to 130°C in a hot-air oven. Graph the growth of each culture.
- 35) How does chlorine kill microorganisms?
- 36) What are factors that contribute to hospital-acquired infections?
- 37) If you were preparing nutrient agar at home and didn't have an autoclave, what could you use to sterilize the nutrient agar?
- 38) Repair of damaged DNA might be viewed as a race between an endonuclease and \_\_\_\_\_.
- 39) An enzyme produced in response to the presence of a substrate is called \_\_\_\_\_.
- 40) Name the mechanism by which the presence of arabinose controls the arabinose operon.
- 41) What is the initial effect of ionizing radiation on a cell?
- 42) What stops the synthesis of a repressible enzyme?
- 43) What can be made with recombinant DNA technology?

**Possible essay Questions:**

- Describe how the properties of phospholipids make these molecules well suited for plasma membranes.
- Provide evidence to substantiate the hypothesis that eukaryotic cells evolved from prokaryotic cells.
- Assume that you are responsible for decontaminating materials in a large hospital. How would you sterilize each of the following? Briefly justify your answers.
  - a. A mattress used by a patient with bubonic plague.
  - b. Intravenous glucose-saline solutions.
  - c. Used disposable syringes.
  - d. Tissues taken from patients.
- Scientists are concerned that bacteria will be resistant to all antibiotics within the next decade. Using your knowledge of genetics, describe how bacterial populations can develop drug resistance.