Microbiology
Unit 6 Test Review

Name: KEY Date: _____ Hour: _____ Test #: _____

1. Define the following terms and give examples (when applicable):
   a. Antibiotic: a product of one microorganism that is detrimental or inhibitory to other microbes in small amounts
   b. Disinfectant: a chemical substance that destroys disease-causing microbes, applied to inanimate objects
   c. Sterilization: the process of killing all microorganisms in a given area.
   d. Vaccine: a substance used to stimulate the production of antibodies and provide immunity, contains weakened or inactive microorganisms
   e. Superbug (Drug Resistant): a disease-causing microorganism that has developed resistance to a particular chemotherapeutic agent
   f. Desiccation: drying or removal of water - prevents bacteria reproduction
   g. Disinfection: the process of destroying disease-causing microorganisms
   h. Sulfonamide: antibacterial compounds containing sulfur, were the first widely used chemotherapeutic agents
   i. Chemotherapy: treatment of disease or symptoms with a chemical compound
   j. Pasteurization: heating a beverage or other food to a specific °T (less than boiling point) for a period of time in order to kill microorganisms that could cause disease, spoilage, or undesired fermentation
2. What are the six different physical methods for controlling microbes? (Give a brief description for each)
   a. Heat sterilization - kills microbes by inactivation of essential proteins (Moist Heat, Boiling Water, Dry Heat)
   b. Pasteurization - does NOT sterilize (definition above)
   c. Desiccation - bacteria may survive if embedded in mucus, pus, or feces
   d. Radiation - kills microbes by destroying nucleic acids (Ionizing radiation, UV light)
   e. Filtration - removal of bacteria from a liquid by passing it through a filter with pores smaller than bacteria
   f. Low Temperatures - prevents bacterial reproduction, but will not sterilize and can preserve (Lyophilization)
3. What are the two different ways an antibiotic works to fight an infection? Define each method.
   a. Bactericidal - kills the bacteria by preventing the bacteria from making a cell wall
   b. Bacteriostatic - prevents bacteria from dividing (DNA synthesis, metabolism, and protein synthesis)

4. Describe the history behind the discovery of the first antibiotic. Alexander Fleming in 1928 was a messy scientist that noticed S. aureus would not grow where mold was present → developed Penicillin
5. What do you call a hospital-acquired infection? nosocomial infection
6. List the four different common types of disinfectants and antiseptics.
   a. Alcohols - kills microbes by protein denaturation
   b. Soaps and detergents - surface active agents, mechanically remove bacteria
   c. Hydrogen peroxide - mildly antiseptic due to oxidizing ability
   d. Halogens - chlorine and iodine
      pools, H_2O skin antiseptic

*7. Describe the three methods for heat sterilization.
   a. Moist Heat - steam under pressure, at 15 lb./in^2 above normal air pressure the boiling point of H_2O is at 121°C
   b. Boiling H_2O - kill all vegetative cells, ineffective on endospores Addition of 2% sodium bicarbonate to H_2O will raise boiling
   c. Dry Heat - Effectiveness depends on penetration of heat through object to be sterilized, requires much higher heat than moist heat or boiling H_2O
8. What are the rules for antibiotics?
   a. Take antibiotics only when prescribed for you by your doctor
   b. Take antibiotics for FULL length of time recommended You should have NONE leftover
   c. If you do have leftovers, DO NOT save them for future use.

used to sterilize items which would be damaged by H_2O

point and kill endospores