

**Multiple choice.** (1 point each) Choose the one best answer to each of the following questions.

1. \_\_\_ Which of the following areas of the body do not have a resident microbial flora?
  - A. upper respiratory tract
  - B. eyes
  - C. bladder
  - D. ear
  
2. \_\_\_ Which statement(s) is/are true?
  - A. Gram positive organisms dominate the microflora.
  - B. *Propionibacterium acnes* is a normal resident of the skin.
  - C. Lipophilic yeasts are sometimes normal residents of the skin.
  - D. All of the above
  
3. \_\_\_ Which of the following phenomena is/are associated with the metabolic and biochemical activities of the intestinal microflora?
  - A. Vitamin synthesis
  - B. Production of amines
  - C. Production of organic acids
  - D. All of the above.
  
4. \_\_\_ Which of the following organisms is most likely to be implicated in dental caries?
  - A. *Staphylococcus aureus*
  - B. *Staphylococcus epidermidis*
  - C. *Streptococcus sobrinus*
  - D. *Escherichia coli*
  
5. \_\_\_ Which statement is true about an exotoxin?
  - A. It is mostly produced by gram negative bacteria.
  - B. Its LD<sub>50</sub> may be as low as the picogram level.
  - C. It is composed primarily of carbohydrate.
  - D. It is LPS associated.
  
6. \_\_\_ Gingivitis is a(n)
  - A. early form of bone loss.
  - B. inflammation of the soft tissue.
  - C. periodontal disease.
  - D. all of the above.
  
7. \_\_\_ Which of the following is an enterotoxin?
  - A. Cholera toxin
  - B. Diphtheria toxin
  - C. Plague toxin
  - D. LPS of Salmonella
  
8. \_\_\_ Which exotoxin binds to inhibitory neurons, blocking the release of glycine, and resulting in twitching paralysis?
  - A. Diphtheria toxin
  - B. Tetanus toxin
  - C. Botulinum toxin
  - D. Cholera toxin

9. \_\_\_ Which of the following is/are associated with bacterial invasion?
- A. Collagenase
  - B. Phospholipase
  - C. Hemolysin
  - D. All of the above
10. \_\_\_ The toxin of *Clostridium tetani* is classified as a(n)
- A. Endotoxin
  - B. Cytotoxin
  - C. Enterotoxin
  - D. Neurotoxin
11. \_\_\_ The substance in the LPS for gram negative bacteria that is responsible for the effects of the toxin is
- A. The core polysaccharide
  - B. Lipid A
  - C. The O-polysaccharide
  - D. the dideoxysugars
12. \_\_\_ Antibacterial substances found in the mouth include
- A. Lysozyme
  - B. Lysozome
  - C. Lipase
  - D. All of the above
13. \_\_\_ Hemolysins are lytic agents that
- A. lyse red blood cells
  - B. lyse white blood cells
  - C. lyse bacterial cells
  - D. destroy viruses
14. \_\_\_ Which of the following virulence factors are important for pathogenicity in *Streptococcus pneumoniae*?
- A. capsule
  - B. exotoxin P
  - C. hemolysin
  - D. all of the above
15. \_\_\_ The most common of all nosocomial infections are found in the
- A. blood
  - B. reproductive tract
  - C. urinary tract
  - D. respiratory tract
16. \_\_\_ MacConkey's agar and EMB agar are
- A. selective but not differential
  - B. differential but not selective
  - C. both selective and differential
  - D. neither selective nor differential
17. \_\_\_ Which of the following tests would allow the specific identification of a single microbe under the microscope?
- A. fluorescent antibody (FA)
  - B. radioimmunoassay (RIA)
  - C. enzyme-linked immunosorbent assay (ELISA)
  - D. agglutination.

18. \_\_\_ In which type of medium will an indicator dye be found?
- A. selective but not differential
  - B. differential but not selective
  - C. both selective and differential
  - D. neither selective nor differential
19. \_\_\_ Transmission of an infectious disease is most likely during the
- A. incubation period
  - B. prodromal period
  - C. acute period
  - D. decline period
20. \_\_\_ Diseases that naturally occur in animals and accidentally in humans are called
- A. nosocomial infections
  - B. zoonosis
  - C. vector infections
  - D. muduranes
21. \_\_\_ An inanimate object that transmits infectious agents between hosts is most appropriately called a
- A. fomite
  - B. carrier
  - C. vector
  - D. reservoir
22. \_\_\_ A tick transmitting *Rickettsia rickettsii* to a human is an example of a(n)
- A. endemic vector
  - B. opportunistic pathogen
  - C. biological vector
  - D. mechanical vector
23. \_\_\_ According to recent statistical studies in the US, a person is most apt to acquire a serious infection
- A. in a hospital
  - B. at home
  - C. At school
  - D. While travelling
24. \_\_\_ The federal agency responsible for disease surveillance in the US is the
- A. USDA
  - B. FDA
  - C. CDC
  - D. EPA
25. \_\_\_ Which of the following diseases would not normally be spread by a common source?
- A. measles
  - B. typhoid fever
  - C. dysentery
  - D. cholera
26. \_\_\_ Which of the following is/are considered direct contact infections?
- A. syphilis
  - B. gonorrhoea
  - C. AIDS
  - D. all of the above

**Short answer.** (1 or 2 points each)

- (1) The relative ability of a pathogen to cause disease of greater or lesser severity is that pathogen's \_\_\_\_\_.
- (1) When the virulence of a pathogen is decreased or even completely lost, the pathogen is said to be \_\_\_\_\_.
- (1) A polymer coat consisting of a dense, well-defined layer closely surrounding the cell is known as the \_\_\_\_\_.
- (1) A large number of bacteria in the bloodstream results in a condition known as \_\_\_\_\_.
- (1) Describe one of the properties of microorganisms that grow well on the skin.
  
- (1) Why are hospital patients more susceptible than "normal" individuals to infectious agents?
  
- (1) Why does *Lactobacillus* inhabit the stomach?
  
- (2) What are the four possible outcomes resulting from the initial contact with a microbe?
  
- (1) What is an infectious dose?
  
- (2) Describe the stages of infection and what is happening in each stage.
  
- (1) Why do Gram-positive Bacteria not produce endotoxins?
  
- (1) Why are the endotoxins generally not as potent as the exotoxins?
  
- (2) Describe two of the three types of fever.
  
- (1) How might preexisting infections compromise an otherwise healthy host?
  
- (2) Distinguish between selective and differential identification methods. Give an example of a medium used for each purpose.

(1) Why does the antibody titer to an organism rise during convalescence?

(1) What advantages do agglutination tests have over other immunoassays?

(1) Distinguish between an endemic disease, an epidemic disease, and a pandemic disease.

(1) Distinguish between acute and chronic carriers.

(1) How does herd immunity prevent a non-immune individual from acquiring a disease?

**Short Essay Questions.** Please answer 4 of the following 5 short essay questions (5 points each - 5 bonus points possible for answering all five questions)

Describe five factors that are important in the emergence or reemergence of potential pathogens?

List the three major types of exotoxins and compare exotoxins and endotoxins.

What have we learned about the function of the resident microflora through the use of axenic animals?

Explain how an organism may become attenuated. Define the role of attenuated organisms in vaccine production and give an example.

Describe how an ELISA is used to diagnose a patient with an infectious disease.