1. Which of the following statements concerning *Plasmodium vivax* is TRUE?

A. It infects all stages of erythrocytes (immature, mature, and senescent).
B. It can stay dormant in hepatocytes (liver cells) and produce disease years after infection.
C. Erythrocytes infected with this species adhere to the walls of blood vessels and block the circulation.
D. It is the most virulent species of *Plasmodium*.

2. The type III secretion system of *Yersinia pestis*

A. inhibits the phagocytic function of macrophages and neutrophils.
B. activates host plasminogen resulting in plasmin activity that allows dissemination from the flea bite.
C. allows the formation of biofilms in the flea gut.
D. destroys antibodies, contributing to the immunosuppressive effects of plague.

3. Which of the following is caused by antigen antibody complexes produced during a bacterial infection?

A. Scarlet fever
B. Scalded skin syndrome
C. Acute rheumatic fever
D. Acute glomerulonephritis

4. Which protects against paralytic disease but not intestinal infection by poliovirus?

A. Oral polio vaccine (Sabin vaccine)
B. Inactivated polio vaccine (Salk vaccine)
C. Sanitation
D. Antiviral drugs

5. Which of the following inhibit protein synthesis?

A. vancomycin.
B. ciprofloxacin.
C. azithromycin.
D. all of the above.

6. Impetigo is an infection caused by *Streptococcus pyogenes* that involves...

A. the epidermis.
B. the subcutaneous fat.
C. the dermis.
D. the pilosebaceous glands.
7. One of the virulence factors associated with uropathogenic *E. coli* (*E. coli* that cause urinary tract infections) is ...

A. ADP-ribosylating toxin.
B. M protein.
C. enterotoxin.
D. siderophore (iron acquisition molecule).

8. Elementary body ...

A. refers to proteins crosslinked by disulfide bonds in the cell wall of *Chlamydia*.
B. is the intracellular replicating form of *Chlamydia*.
C. is the infectious form of *Chlamydia*.
D. is the intracellular, non-replicating latent form of *Chlamydia*.

9. Which of the following statements concerning *Chlamydia trachomatis* infections is TRUE?

A. Epididymitis is a common but usually not serious complication of infection in men.
B. Infection in women is usually accompanied by severe symptoms.
C. The highest incidence of infection is in males > 25 years of age.
D. *Chlamydia* infections are less common than other reportable sexually transmitted infections such as gonorrhea and syphilis.

10. The type IV secretion system of Gram-negative bacteria ...

A. directs the transfer of effector protein toxins from the bacterial cytoplasm to cytoplasm of the target cell.
B. secretes AB toxins.
C. secretes membrane damaging toxins.
D. is evolutionarily related to flagella.

11. Which of the following is the most important cause of meningitis in teenagers?

A. *Streptococcus pyogenes* (Group A *Streptococcus*)
B. *Streptococcus agalactiae* (Group B *Streptococcus*)
C. *Haemophilus influenzae*
D. *Neisseria meningitidis*

12. Cholera toxin covalently modifies ...

A. the enzyme that synthesizes cAMP.
B. a regulatory protein with GTPase activity.
C. an ion channel.
D. none of the above.
13. Kidney damage produced by uropathogenic E. coli is caused by ...

A. bacteria growing in the kidney.
B. the effects of circulating toxin on the vascular endothelial cells of the kidney.
C. antigen-antibody complexes in the glomeruli of the kidney.
D. ADP-ribosylation of adenylate cyclase in the kidney.

14. Staphylococcal toxic shock syndrome is associated with ...

A. use of tampons during menstruation
B. wound infections
C. superantigen toxin
D. all of the above

15. Tetanus toxin ...
A. is a protease.
B. causes flaccid paralysis.
C. stimulates the release of inhibitory neurotransmitters in the CNS.
D. All of the above.

16. The vaccine against tetanus is a ...

A. live attenuated vaccine.
B. killed whole cell vaccine.
C. subunit vaccine.
D. toxoid vaccine.

17. Fluoroquinolone antibiotics ...

A. inhibit the insertion of the peptidoglycan subunit into the glycan chain.
B. inhibit RNA synthesis.
C. inhibit protein synthesis.
D. inhibit DNA synthesis.

18. Acne is caused by a combination of abnormal keratin production and ...

A. normal skin bacterial flora.
B. *Staphylococcus aureus*
C. *Streptococcus pyogenes*
D. *Staphylococcus epidermidis*
19. An important and common viral strategy against innate host defenses is ...

A. penetration of intact epithelium.
B. activation of PKR, a kinase that shuts down protein synthesis in the infected cell.
C. inhibition of apoptosis in the infected cell.
D. binding the Fc portion of antibody molecules.

20. The neuraminidase protein on the surface of influenza virus ...

A. is important for genome replication.
B. binds the virus to receptors on the target cell surface.
C. is required for uncoating of the viral genome after infection of the cell.
D. is required for release of progeny virus from the cell.

21. Which factor contributes to the ability of *Helicobacter pylori* to produce chronic inflammation?

A. Non-inflammatory LPS and flagella.
B. CagA
C. VacA
D. All of the above.

22. Bacterial vaginosis ...

A. is caused by *Lactobacillus crispatus*.
B. is caused by *Chlamydia trachomatis*.
C. is caused by *Candida albicans*.
D. is transmissible.

23. Most people who become infected with *Mycobacterium tuberculosis* will ...

A. develop active pulmonary disease.
B. develop a positive tuberculin skin test.
C. experience reactivation disease years after the initial infection.
D. develop disseminated disease.

24. The overall incidence of neonatal meningitis in the US has declined significantly in the past 25 years. This is due mostly to ...

A. improved sanitation.
B. immunization with polysaccharide-protein conjugate vaccines.
C. antibiotic prophylaxis.
D. pre-natal screening and intra-partum antibiotics.
25. *Staphylococcus aureus* was commonly resistant to penicillin within just a few years of introduction of the drug. This resistance was due to ...

A. acquisition of a gene replacing the target of the antibiotics with an insensitive version.
B. production of an enzyme which inactivates the antibiotics.
C. active efflux of the antibiotics from the cell.
D. acquisition of a permeability to the antibiotics.

26. If a rapid strep test is negative for a patient with severe pharyngitis, a throat culture for *Streptococcus pyogenes* should be performed because

A. The rapid strep test is not very specific
B. The throat culture is not very sensitive.
C. The rapid strep test is not very sensitive.
D. The throat culture is not very specific.

27. Asexual reproduction of the malaria parasite occurs ...

A. only in the mosquito
B. only in the liver
C. only in the erythrocyte
D. in the erythrocyte and in the liver

28. Enterohemorrhagic *Escherichia coli* produce a toxin that ...

A. ADP-ribosylates ribosomal RNA
B. ADP-ribosylates a protein translation factor
C. removes a nucleotide base from ribosomal RNA
D. none of the above.

29. Disease produced by *Campylobacter jejuni* is most similar to disease produce by ...

A. *Shigella sonnei*
B. *Vibrio cholerae*
C. enterohemorrhagic *E. coli*
D. *Salmonella enterica* non-Typhi serovars

30. The most important cause of the symptoms of AIDS is ...

A. the increased number of HIV virions in the blood.
B. the reduced number of CD4 T cells in the blood.
C. the reduced number of macrophages in the blood.
D. the increased levels of anti-HIV antibodies in the blood.
31. Which of the following can cure HIV infections?

A. reverse transcript inhibitors.
B. integrase inhibitors.
C. protease inhibitors.
D. none of the above.
KEY

1. B
2. A
3. D
4. B
5. C
6. A
7. D
8. C
9. A
10. A
11. D
12. B
13. A
14. D
15. A
16. D
17. D
18. A
19. C
20. D
21. D
22. D
23. B
24. D
25. B
26. C
27. D
28. C
29. D
30. B
31. D