

NBCE
MOCK BOARD QUESTIONS
Microbiology, Public Health, and Immunology

1. What occurs in a primary lymphoid tissue?
 - A. Lymphocytes respond to antigens
 - B. Lymphocytes process antigens
 - C. Lymphocytes produce antibodies
 - D. Lymphocytes mature into T and B cells

2. Which of the following occurs in both the classical and the alternate Properdin pathways of Complement activation?
 - A. Cleavage of C 2
 - B. Cleavage of C 4
 - C. Cleavage of C 5
 - D. Binding of C 1

3. Which of the following classes of antibodies exists as a pentamer?
 - A. IgG
 - B. IgA
 - C. IgM
 - D. IgE

4. Cytotoxic T cells kill foreign cells by _____.
 - A. Activation of Complement
 - B. Opsonization
 - C. Producing antibodies
 - D. Producing lymphokines

5. Which of the following holds the heavy and light chains of an immunoglobulin molecule to each other?
 - A. J chains
 - B. Disulfide bonds
 - C. Hinges regions
 - D. Carbohydrate

6. A phagocyte capable of repeated, sustained phagocytosis is most likely _____:
 - A. A macrophage
 - B. A neutrophil
 - C. A plasma cell
 - D. A lymphocyte

7. How many antigen binding sites does IgG possess?
 - A. One
 - B. Two
 - C. Four
 - D. Ten

8. In a primary humoral response, which of the following actually produces the antibodies?
- A. B cells
 - B. Plasma cells
 - C. Helper T cells
 - D. Macrophages
9. Cell associated cytotoxicity occurs in_____.
- A. Type I hypersensitivity reactions
 - B. Type II hypersensitivity reactions
 - C. Type III hypersensitivity reactions
 - D. Type IV hypersensitivity reactions
10. The loss of self recognition may lead to _____.
- A. Immunodeficiency disease
 - B. Increased bacterial infections
 - C. Autoimmune disease
 - D. Increased tumors or cancer
11. Thymine dimers are produced when bacterial DNA is affected by _____.
- A. UV light
 - B. Penicillin
 - C. Base analogs
 - D. Base insertions
12. Which of the following is characterized by possessing a thick outer lipid membrane (LPS)?
- A. Gram negative bacteria
 - B. Gram positive bacteria
 - C. All bacteria
 - D. All viruses
13. Protozoans are classified into phyla based on _____.
- A. Means of motility
 - B. Replicative spores
 - C. Cell wall structure
 - D. Photosynthetic pigments
14. How do bacteria reproduce?
- A. Spore formation
 - B. Binary fission
 - C. Sexual reproduction
 - D. Fusion

15. Which part of the bacterial growth curve represents a period of active growth?
- A. Lag phase
 - B. Log phase
 - C. Stationary phase
 - D. Decline phase
16. How would members of the Family Enterobacteriaceae be classified?
- A. Gram negative cocci
 - B. Gram positive cocci
 - C. Gram negative bacilli
 - D. Gram positive bacilli
17. Proglottids and a scolex would be structures found in _____.
- A. Parasitic protozoans
 - B. Parasitic roundworms
 - C. Parasitic hookworms
 - D. Parasitic flatworms
18. A capsomer is best described as _____.
- A. A viral inclusion body
 - B. Part of a viral capsid
 - C. The lipid envelope
 - D. A protein spike
19. Which of the following is characterized by possessing a thick layer of peptidoglycan?
- A. Gram negative bacteria
 - B. Gram positive bacteria
 - C. All bacteria
 - D. All viruses
20. The Gram stain is based on differences in the composition of the bacterial _____.
- A. Plasmids
 - B. Cell membrane
 - C. Plasma membrane
 - D. Cell wall
21. Eating undercooked pork may put you at risk for _____.
- A. Clostridium
 - B. Salmonella
 - C. Trichinella
 - D. Escherichia
22. How is Hepatitis A spread?
- A. Contaminated food
 - B. Insects or arthropods
 - C. Sexual contact
 - D. Spread through fomites

23. The organism that causes Hansen's disease is ____.
- A. A bacterium
 - B. A fungus
 - C. A virus
 - D. A parasitic protozoan
24. Which of the following is most likely the cause of food poisoning linked to episodes of violent vomiting and diarrhea reported only two hours the consumption of food?
- A. *Streptococcus pyogenes*
 - B. *Staphylococcus epidermidis*
 - C. *Staphylococcus aureus*
 - D. *Listeria monocytogenes*
25. What is the most commonly reported tick borne disease seen in the US?
- A. AIDS
 - B. Lyme Disease
 - C. Rocky Mountain Spotted Fever
 - D. Syphilis
26. *Neisseria meningitidis* uses which of the following virulence factors to survive its passage from the blood to the meninges?
- A. Flagellum
 - B. Pilus
 - C. Pyrogenic exotoxin
 - D. Polysaccharide capsule
27. Which of the following has been implicated in hemolytic uremic syndrome (HUS)?
- A. *Salmonella typhi*
 - B. *Escherichia coli*
 - C. *Salmonella enteritidis*
 - D. *Vibrio cholerae*
28. The Acid Fast stain allows the identification of ____.
- A. Genus *Treponema*
 - B. Genus *Mycoplasma*
 - C. Genus *Mycobacterium*
 - D. Genus *Corynebacterium*
29. Which of the following has been implicated in peptic ulcer disease?
- A. *Mycobacterium*
 - B. *Listeria*
 - C. *Helicobacter*
 - D. *Corynebacterium*

30. What type of genome is found in the Orthomyxoviruses?
A. Single stranded DNA
B. Double stranded DNA
C. Single stranded RNA
D. Double stranded RNA
31. Viruses characterized by a bullet shaped capsid are most likely_____.
A. Ebola
B. Influenza
C. Rabies
D. Measles
32. The organism that causes genital herpes is _____.
A. A bacterium
B. A fungus
C. A virus
D. A parasitic worm
33. What is one potential virulence factor shared by all Gram negative bacteria?
A. Flagella
B. Capsules
C. Exotoxins
D. Endotoxin
34. Which feature of the streptococci is the basis for the Lancefield groupings?
A. Hemolysis patterns
B. Colony size
C. Membrane lipids
D. Cell wall carbohydrates
35. In cases of meningitis, in which age group is Neisseria meningitidis most often implicated?
A. Newborns
B. 3 years to six years
C. Young adults, college age
D. Older adults, elderly
36. The most common cause of skin lesions such as boils or abscesses is _____.
A. Streptococcus pneumoniae
B. Staphylococcus aureus
C. Bacillus cereus
D. Listeria monocytogenes

37. Which of the following water borne enteric diseases is characterized by massive amounts of fluids passed in the feces?
- A. Salmonellosis
 - B. Cholera
 - C. Hepatitis A
 - D. E. coli enteritis
38. How is Bubonic Plague spread?
- A. Drinking contaminated water
 - B. Sexual contact
 - C. Ticks
 - D. Fleas
39. How do the mycoplasmas differ structurally from other bacteria?
- A. The mycoplasmas have DNA but not RNA
 - B. The mycoplasmas lack a cell wall
 - C. The mycoplasmas lack a cell membrane
 - D. The mycoplasmas are Gram positive, yet possess an outer membrane
40. What type of virus causes SARS?
- A. Paramyxovirus
 - B. Orthomyxovirus
 - C. Picornavirus
 - D. Coronavirus
41. Which of the following US government agencies sets the standards for air, water, and soil quality?
- A. WHO
 - B. CDC
 - C. FDA
 - D. EPA
42. What are you using indicator organisms in water testing to detect?
- A. Fecal contamination
 - B. Turbidity levels
 - C. Presence or absence of chemicals
 - D. Offensive odors
43. Which of the following is a major medical research facility?
- A. NIH
 - B. FDA
 - C. EPA
 - D. FSIS

44. Which of the following does not describe ground level ozone?
- A. Contributes to smog formation
 - B. Protects the Earth from UV radiation
 - C. Involves sulfur dioxide reactions
 - D. Involves nitrogen oxide reactions
45. In which disease is mesothelioma a complication?
- A. Silicosis
 - B. White lung disease
 - C. Brown lung disease
 - D. Black lung disease
46. "Etiology" of disease refers to _____.
- A. The cause of the disease
 - B. How to control the disease
 - C. The distribution of the disease
 - D. The treatment of the disease
47. What may cause damage to the median nerve?
- A. Mesothelioma
 - B. Black lung disease
 - C. Carpel tunnel syndrome
 - D. Sick building syndrome
48. A communicable disease _____.
- A. Is spread through ingestion
 - B. Is a zoonosis
 - C. Is spread person to person
 - D. Is an intoxication
49. If you were to graph the population growth of humans on a typical growth curve, where would today's rate fall?
- A. Lag phase
 - B. Log phase
 - C. Stationary phase
 - D. Decline phase
50. Botulism is _____.
- A. A viral infection
 - B. Spread by mosquitoes
 - C. Sexually transmitted
 - D. Caused by a toxin

**NBCE
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Questions
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Answer Key**

- 1. D
- 2. C
- 3. C
- 4. D
- 5. B
- 6. A
- 7. B
- 8. B
- 9. B
- 10. C
- 11. A
- 12. A

- 13. A
- 14. B
- 15. B
- 16. C
- 17. D
- 18. B
- 19. B
- 20. D
- 21. C
- 22. A
- 23. A
- 24. C
- 25. B
- 26. D
- 27. B
- 28. C
- 29. C
- 30. C
- 31. C
- 32. C

- 33. D
- 34. D
- 35. C
- 36. B
- 37. B
- 38. D
- 39. B
- 40. D
- 41. D
- 42. A
- 43. A
- 44. B
- 45. B
- 46. A
- 47. C
- 48. C
- 49. B
- 50. D