

Test for Microbiology Trial Exam

1. Flagella in bacteria have adhesive function:

- a) Yes b) No

2. Endotoxins are proteins:

- A) True B) False

3. Is it true that microaerophilic bacteria grow in an environment with reduced oxygen concentration:

- A) True B) False

4. Autoclaving is an effective method for moist heat sterilization against vegetative cells but not against bacterial spores:

- A) True B) False

5. Antibiotic resistance is the development of resistance in human cells to antibiotics:

- A) True B) False

6. NK cells play an important role in antiviral protection:

- A) Yes B) No

7. There are two main mechanisms for intracellular killing of bacteria in phagocytosis:

- A) Yes B) No

8. The immune system does not have the ability to distinguish itself from foreign antigens:

- a) true b) false

9. Tetanus toxoid is a vaccine produced by detoxifying the *Clostridium tetani* exotoxin:

A) True B) False

10. Haptens are defective antigens having the ability to induce the formation of antibodies and to bind to them:

A) True B) False

11. There is incomplete phagocytosis observed in *M. tuberculosis* infection:

A) Yes B) No.

12. Enteric bacteria from *Enterobacterales* are spore-forming:

a) true b) false

13. *Haemophilus influenzae* is a Gram-positive cocobacterium:

a) true b) false

14. The causative agent of syphilis is *Treponema vincentii*:

A) Yes B) No

15. *Chlamydia* are obligate intracellular parasites:

a) true b) false

16. Western-blot is a confirmatory *HIV* test:

a) True b) False

17. The serological diagnosis of viral infections is based on the patient's specific humoral immune response:

a) True b) False

b / organelles for attachment d / motility organelles

25. Bacterial size is measured in:

a / millimeters c / nanometers

b / micrometers d / picometers

26. The secondary immune response is characterized by the production of antibodies class:

a) IgG

b) IgM

c) IgA

d) IgD

27. NK cells and cytotoxic T- lymphocytes have a major protective role in immunity against:

a) viruses and tumors

b) toxigenic bacteria

c) extracellular bacteria

d) intracellular bacteria

28. Interferon-gamma based tests are used to diagnose tuberculosis infection and are based on increased lymphocyte secretion of:

a) antibodies

b) interferon

c) acute phase proteins

d) oxygen radicals

29. Example of a delayed allergic reaction is:

a) anaphylactic shock

- b) serum sickness
- c) Mantoux test
- d) hemolytic disease

30. Which of the antibodies can pass through the placenta?

- a) IgG
- b) IgM
- c) IgA
- d) IgD

31. *Shigella spp.* are causative agents of the following disease:

- a / gas gangrene
- b / dysentery
- c / diphtheria
- d / whooping cough

32. The formation of pseudomembranes in the throat is observed in:

- a) tuberculosis
- b) whooping cough
- c) diphtheria
- d) tetanus

33. Which of the following statements about tuberculosis bacteria is true:

- a) have metachromatic bodies
- b) form terminally located spores
- c) they are straight or slightly curved rods
- d) have a capsule

34. Which of the following morphological characteristics are specific for *C. perfringens*?

- a) Gram-negative bacteria with subterminally located spores
- b) Gram-positive rod with a centrally located spore
- c) forms a terminally located spore
- d) Gram-negative bacteria that have a terminal spore

35. *Vibrio cholerae* causes:

- a) sexually transmitted infection
- b) acute meningoencephalitis
- c) acute gastroenteritis with loss of water and electrolytes
- d) hemorrhagic inflammation of the colon

36. There is a vaccine available against all of the following diseases EXCEPT:

- a / rubella
- b / measles
- c / mumps
- d / hepatitis C

37. Laboratory screening for HIV seropositivity is initially performed by:

- a) neutralization test
- b) complement fixation reaction
- c) ELISA method
- d) passive hemagglutination

38. Which of the following viruses are characterized by high antigenic variability:

- a) rabies virus
- b) influenza virus type A
- c) measles virus

d) hepatitis C virus

39. Which class of specific antibodies is found in high titer in the serum of a baby with congenital rubella:

a / IgG

b / IgA

c / IgM

d / IgE

40. The *AIDS* virus is transmitted by all of the following mechanisms EXCEPT:

a) parenteral

b) sexual

c) transplacental

d) airborne

41. Pilli in bacteria can be used for:

a) movement

b) nutrition

c) conjugation

d) breathing

e) adhesion

f) survival

42. Which of the following elements is found only in the cell wall of Gram-negative bacteria:

a) D-amino acids

b) teichoic acids

c) teichuronic acids

d) lipid A

- e) peptidoglycan
- f) O-specific polysaccharide

43. Which structures of bacteria are made up of proteins?

- a) glycocalyx
- b) spores
- c) axial filaments
- d) lipopolysaccharide
- e) fimbriae
- f) peptidoglycan

44. Indicate the correct statements concerning macrolide antibiotics:

- a) a preferred group as an alternative for oral treatment of patients with penicillin allergy
- b) act with the mechanism of inhibiting the synthesis of nucleic acids
- c) this group includes Erythromycin, Clarithromycin, Azithromycin and others
- d) used to treat severe nosocomial infections
- e) may not be used in young children and pregnant women
- f) act with the mechanism of inhibiting cell wall synthesis

45. For specific immune prophylaxis and treatment of tetanus after injury or bite of an animal shall be applied:

- a / live attenuated vaccine
- b / aminoglycosides
- c / toxoid (toxoid)
- d / killed vaccine
- e / antitoxic serum
- f / hyperbaric chamber

46. There is an abundant local immune response in:

- a) tuberculosis
- b) polio
- c) plague
- d) gonorrhoea
- e) AIDS
- f) diphtheria

47. Cell-mediated immunity involves:

- a) B-lymphocytes
- b) Th-lymphocytes
- c) NK cells
- d) macrophages
- e) segmental leukocytes
- f) Tc-lymphocytes

48. Which of the following antibodies can activate the complement:

- a) IgA
- b) IgD and IgM
- c) IgM
- d) IgE
- e) IgG and IgA
- e) IgG

49. All listed vaccines are mandatory EXCEPT:

- a) anti-pertussis
- b) anti-tuberculosis

- c) anti-plague
- d) anti-diphtheria
- e) anti-cholera
- f) anti-tetanus

50. Meningococcal disease can be clinically manifested as:

- a) enterocolitis
- b) meningitis
- c) acute hepatitis
- d) cervicitis
- e) pyelonephritis
- f) Waterhouse-Friedrichsen syndrome

51. The characteristic location of *pneumococci* in a direct microscopic slide is:

- a) in pairs
- b) in groups such as clusters
- c) in tetrads
- d) intracellular
- e) extracellular
- f) palisade

52. Which statements about gonococci are true:

- a) they are Gram-positive cocci arranged in chains
- b) they are Gram-negative renal cocci arranged in pairs
- c) virulent strains have adhesive pili
- d) the most important pathogenic factor is an exotoxin
- e) have a protein capsule

f) not located intracellularly

53. Suitable media for cultivation of anaerobic bacteria are:

- a) thioglycolate broth
- b) Löfler agar
- c) Zeissler agar
- d) TCBS agar
- e) simple agar
- f) Bordet-Gengou agar

54. Which of the following microorganisms cause diarrheal infections in humans:

- a) *Treponema pallidum*
- b) *Helicobacter pylori*
- c) *Vibrio cholerae*
- d) *Yersinia enterocolitica*
- e) *Borrelia recurrentis*
- f) *Listeria monocytogenes*

55. Psittacosis is a disease:

- a) in which there are many species of poultry and wild birds as a reservoir
- b) which is anthroponosis
- c) which is represented clinically as atypical pneumonia
- d) which is treated with penicillin
- e) which can be complicated by colitis
- f) which is sexually transmitted

56. Indicate the specific clinical manifestations of the first stage in the development of syphilis:

- a) syphilitic skin lesions
- b) hard painless ulcer
- c) gummas
- d) regional lymphadenitis
- e) encephalitis
- f) ophthalmitis

57. The AIDS virus is transmitted by the following mechanisms:

- a) aerosol
- b) parenteral
- c) alimentary
- d) transplacental
- e) by arthropods
- f) air-drop

58. *Epstein-Barr virus* leads to:

- a) Kaposi's sarcoma
- b) Burkitt's lymphoma
- c) congenital injuries
- d) liver cancer
- e) nasopharyngeal cancer
- f) cervical cancer

59. Which claims about the *poliovirus* are FALSE:

- a) chronic forms are typical

- b) the disease is characterized by flaccid paralysis
- c) the cases of asymptomatic forms are greater than the clinically manifested ones
- d) the virus is transmitted through sexual contact
- e) damages the motor neurons of the spinal cord
- f) its isolation is performed on cell cultures

60. Which of the following viruses are DNA:

- a) *Influenza virus*
- b) *Varicella-zoster virus*
- c) *Hepatitis C virus*
- d) *Hepatitis B virus*
- e) *Human Coronavirus*
- f) *Rabies virus*

61. CLINICAL CASE 1

After a bone fracture, a 71-year-old man admitted to the Clinic of Orthopedics and Traumatology underwent major surgery to replace his right hip. The patient received intravenous antibiotic prophylaxis in the perioperative period. On the seventh day after the surgery, fever, inflammation and secretion from the wound appeared. Surgical treatment was performed and samples are collected for microbiological examination. After cultivation of the wound secretion on blood agar, growth of colonies with beta hemolysis was observed, and on Levin agar, there was no growth. The microorganism gave a positive catalase and a negative oxidase test.



Which is the most likely causative agent of the infection?

- a) *Streptococcus pyogenes*
- b) *MRSA*
- c) *Escherichia coli*
- d) *Pseudomonas aeruginosa*

62. What other tests would you do to confirm the diagnosis?

- a) Optochin test
- b) IMVUC
- c) CAMP test and Bacitracin
- d) Plasma coagulase test

63. What is the most appropriate therapy?

- a) Penicillin
- b) Carbapenems
- c) Ceftriaxone
- d) Glycopeptides

64. CLINICAL CASE 2

A 7-year-old girl was accompanied by her mother to her GP with complaints of fever and pain when swallowing and speaking. Her symptoms started a few days ago, but the symptomatic drugs did not alleviate the complaints. The physical examination showed enlarged tonsils with whitish purulent deposits on them. A throat swab was taken for microbiological examination. 24 hours after cultivation on blood agar, transparent colonies with β -hemolysis, which are catalase-negative, were observed.



What is the most likely causative agent of the infection?

- a) *Candida albicans*
- b) *Streptococcus pyogenes*
- c) *Corynebacterium diphtheriae*
- d) *Staphylococcus aureus*

65. What is the most likely diagnosis?

- a) Diphtheria
- b) Soor
- c) Streptococcal angina

d) Staphylococcal throat infection

66. What is the most appropriate therapy?

a) Fluconazole

b) Diphtheria serum

c) Penicillin

d) Vancomycin