



KROK-1 ANSWER KEY

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Terminology



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1. When defining blood group according to the ABO system, using salt solutions of monoclonal antibodies, agglutination didn't occur with any of the solutions. What blood group is it?

- A. B (III)
- B. O (I)**
- C. A (II)
- D. AB (IV)
- E. -

2. A 50-year-old woman is being treated for shingles in a neurology unit. What reactivated virus causes this disease?

- A. Herpes simplex virus type 1
- B. Measles virus
- C. Herpes simplex virus type 2
- D. Cytomegalovirus
- E. Varicella zoster virus (chickenpox virus)**

3. Experimental stimulation of the sympathetic nerve branches that innervate the heart caused an increase in force of heart contractions because the membrane of typical cardiomyocytes permitted an increase in:

- A. Potassium ion exit
- B. Potassium ion entry
- C. Calcium and potassium ion exit
- D. Calcium ion exit
- E. Calcium ion entry**

4. An electron micrograph shows a cell of neural origin. The terminal portion of the cell dendrite has cylindrical shape and consists of 1000 closed membrane disks. What cell is represented by the micrograph?

- A. Spinal node neuron
- B. Neuron of the anterior horns of the spinal cord
- C. Cone receptor cell
- D. Rod receptor cell**
- E. Neuron of the cerebral cortex

5. A histological specimen of the eyeball shows a biconvex structure connected to the ciliary body by the fibers of the Zinn's zonule and covered with a transparent capsule. Name this structure:

- A. Cornea
- B. Crystalline lens**
- C. Sclera
- D. Ciliary body
- E. Vitreous body

6. When measuring total muscle action potential it was revealed that it was subject to the power-law relationship. The reason for this is that individual muscle fibers differ in:

- A. Critical level of depolarization
- B. Diameter
- C. Resting potential
- D. Conduction velocity
- E. Depolarization threshold**

7. A 47-year-old male patient developed intestinal colic against the background of essential hypertension. In this situation it would be most efficient to arrest the colic by using drugs of the following group:

- A. Sympathomimetics
- B. Anticholinesterase agents
- C. Adrenomimetics
- D. Myotropic antispasmodics**
- E. M-cholinomimetics

8. Sex chromatin was detected during examination of a man's buccal epithelium. It is characteristic of the following chromosome disease:

- A. Down's disease
- B. Klinefelter's syndrome**
- C. Turner's syndrome
- D. Hypophosphatemic rickets
- E. Triple X syndrome

9. A patient complaining of rapid pulse, dyspnea and bluish color of mucosa has been admitted to the cardiological department. The objective symptoms are as follows: edema of lower extremities, ascites. Which of the given medicines should be prescribed for intravenous administration to improve the patient's general state?

- A. Digitoxin
- B. Adrenalin hydrochloride
- C. Cordiamin
- D. Corglyconum
- E. Drotaverine

10. A patient is diagnosed with cardiac infarction. Blood test for cardiospecific enzymes activity was performed. Which of the enzymes has three isoforms?

- A. Lactate dehydrogenase
- B. Alanine transaminase
- C. Pyruvate kinase
- D. Aspartate transaminase
- E. Creatine kinase

11. For the direct injection of medications into the liver surgeons use the round ligament of liver. This manipulation involves bougienage (lumen dilatation) of the following vessel:

- A. Ductus venosus
- B. A. hepatica propria
- C. A. umbilicalis
- D. V. porta
- E. V. umbilicalis

12. As an example of specific human parasites one can name Plasmodium falciparum, human pinworm and some others. The source of parasite invasion is always a human. Such specific human parasites cause the diseases that are called:

- A. Anthroponoses
- B. Anthropozoonoses
- C. Multifactorial diseases
- D. Infections
- E. Zoonoses

13. During blood transfusion a patient has developed intravascular erythrocyte hemolysis. What kind of hypersensitivity does the patient have?

- A. IV type (granulomatosis)
- B. IV type (cellular cytotoxicity)
- C. I type (anaphylactic)
- D. III type (immune complex)
- E. II type (antibody-dependent)

14. Biochemical analysis of an infant's erythrocytes revealed evident

glutathione peroxidase deficiency and low concentration of reduced glutathione. What pathological condition can develop in this infant?

- A. Sicklemlia
- B. Pernicious anemia
- C. Iron-deficiency anemia
- D. Hemolytic anemia
- E. Megaloblastic anemia

15. A 43-year-old patient suffers from acute pancreatitis with disrupted common bile duct patency. What condition can develop in this case?

- A. Mechanical jaundice
- B. Portal hypertension
- C. Hepatocellular jaundice
- D. Hemolytic jaundice
- E. Hepatic coma

16. A casualty with an injury of the temporal region has been diagnosed with epidural hematoma. Which of the arteries is most likely to be damaged?

- A. Anterior membranous artery
- B. Medial cerebral artery
- C. Posterior auricular artery
- D. Superficial temporal artery
- E. Medial membranous artery

17. Along with normal hemoglobin types there can be pathological ones in the organism of an adult. Name one of them:

- A. HbS
- B. HbF
- C. HbA₁
- D. HbA₂
- E. HbO₂

18. 10 days after having quinsy caused by beta-hemolytic streptococcus a 6-year-old child exhibited symptoms of glomerulonephritis. What mechanism of glomerular lesion is most likely in this case?

- A. Anaphylaxis
- B. Cellular cytotoxicity
- C. Antibody-dependent cell-mediated cytotoxicity
- D. Atopy
- E. Immunocomplex

19. In one of Polesye regions there

was an outbreak of helminthiasis manifested by cramps and facial edema. The developed preventive measures in particular included ban for eating infested pork even after heat processing. What helminthiasis was the case?

- A. Taeniarhynchosis
- B. Alveococcosis
- C. Teniasis
- D. Trichinosis**
- E. Echinococcosis

20. A 22-year-old woman ate some seafood. 5 hours later the trunk and the distal parts of limbs got covered with small itchy papules which were partially fused together. After one day, the rash disappeared spontaneously. Specify the hypersensitivity mechanism underlying these changes:

- A. Antibody-dependent cell-mediated cytotoxicity
- B. Systemic anaphylaxis
- C. Cellular cytotoxicity
- D. Immune complex hypersensitivity
- E. Atopy (local anaphylaxis)**

21. A microspecimen of heart shows rectangular cells from 50 to 120 micrometers large with central position of nucleus and developed myofibrils. The cells are connected by intercalated discs. These cells are responsible for the following function:

- A. Function of heart contractions**
- B. Regeneratory
- C. Function of impulse conduction
- D. Protective
- E. Endocrine

22. Monoamine oxidase inhibitors are widely used as psychopharmacological drugs. They change the level of nearly all neurotransmitters in synapses, with the following neurotransmitter being the exception:

- A. Dopamine
- B. Noradrenaline
- C. Serotonin
- D. Adrenaline
- E. Acetylcholine**

23. A pregnant woman was detected with IgM to rubella virus. An obstetrician-gynecologist recommended therapeutic abortion due to the high risk of teratogenic affection of the fetus. Detection of IgM was of great importance as it is these specific immunoglobulins that:

- A. Have the largest molecular weight
- B. Are associated with anaphylactic reactions
- C. Penetrate placental barrier
- D. Indicate recent infection**
- E. Are the main factor of antiviral protection

24. A 40-year-old woman was diagnosed with glomerulonephritis based on her clinical symptoms and the results of urine analysis. Anamnesis states chronic tonsillitis. What microorganisms are the most likely cause for her kidney damage?

- A. Streptococci**
- B. Staphylococci
- C. Mycoplasma
- D. Meningococci
- E. Escherichia

25. A patient with hypertensive crisis has increased content of angiotensin II in blood. Angiotensin pressor effect is based on:

- A. Prostaglandin hyperproduction
- B. Activation of biogenic amine synthesis
- C. Activation of kinin-kallikrein system
- D. Contraction of arteriole muscles**
- E. Vasopressin production stimulation

26. A patient with probable liver abscess was delivered to a surgical department. The patient for a long time had been on an assignment in an African country and had recurrent cases of acute gastrointestinal disturbance. What protozoan disease can it be?

- A. Amebiasis
- B. Trypanosomiasis
- C. Malaria
- D. Leishmaniasis**
- E. Toxoplasmosis

27. During a surgery for femoral hernia a surgeon operates within the boundaries of femoral trigone. What structure makes up its upper margin?

- A. *Fascia lata*
- B. *Lig. pectinale*
- C. *Lig. inguinale*
- D. *Lig. lacunare*
- E. *Arcus iliopectineus*

28. A patient with insomnia induced by allergic rash and itch has been prescribed the drug that has antihistamine and hypnotic effect. Specify this drug:

- A. Prednisolone
- B. Benadryl
- C. Loratadine
- D. Acetylsalicylic acid
- E. Analgin

29. Poisoning caused by mercury (II) chloride (corrosive sublimate) occurred in the result of safety rules violation. In 2 days the patient's

daily diuresis became 620 ml. The patient developed headache, vomiting, convulsions, dyspnea; moist crackles are observed in the lungs. Name this pathology:

- A. Glomerulonephritis
- B. Chronic renal failure
- C. Pyelonephritis
- D. Acute renal failure
- E. Uremic coma

30. A 22-year-old female student consulted a physician about fever up to 38°C, weakness, sore throat. Objectively: there is white coating of the tongue. What histological structures of the tongue are involved in the formation of this coating?

- A. Epithelium of the circumvallate papillae
- B. Epithelium of the fungiform papillae
- C. Connective-tissue base of all the lingual papillae
- D. Epithelium of the foliate papillae
- E. Epithelium of the filiform papillae