

I. Read the text and answer 10 questions to it.

Measles

Measles is an acute viral disease characterized by fever, cough, coryza, and conjunctivitis, followed by a maculopapular rash beginning on the face and spreading cephalocaudally and centrifugally. During the prodromal period, a pathognomonic enanthema (Koplik spots) may be present. Complications include otitis media, bronchopneumonia, laryngotracheobronchitis (croup), and diarrhea and occur commonly in young children and immunocompromised hosts. Acute encephalitis often results in permanent brain damage and occurs in approximately 1 of every 1,000 cases. Case-fatality rates are increased in children younger than 5 years and immunocompromised children. Sometimes, the characteristic rash does not develop in immunocompromised patients.

Subacute sclerosing panencephalitis (SSPE) is a rare degenerative central nervous system disease characterized by behavioral and intellectual deterioration and seizures. Widespread measles immunization has led to the virtual disappearance of SSPE in the United States. The only natural host of measles virus is humans. Measles is transmitted by direct contact with infectious droplets or, less commonly, by airborne spread. Measles is one of the most highly communicable of all infectious diseases.

The childhood and adolescent immunization program in the United States has resulted in a greater than 99% decrease in the reported incidence of measles and interruption of endemic disease transmission since measles vaccine was first licensed in 1963.

From 1989 to 1991, the incidence of measles in the United States increased because of low immunization rates in preschool-aged children, especially in urban areas. Following improved coverage in preschool-aged children and implementation of a routine second dose of measles- mumps-rubella vaccine for children, the incidence of measles declined to extremely low levels (<1 case per 1 million population). The number of measles outbreaks (23 cases linked in time and space) that occurred ranged from 2 to 16 per year. In the first half of 2014, 514 measles cases from 16 outbreaks were reported in 20 states.

Forty-eight separate importations occurred; 81% were in unvaccinated people, 12% of those infected had an unknown vaccination status (78% of those were adults), and 7% of those infected were vaccinated (including 5% with 2 or more doses).

1. On what does the form of anthrax depend?

- A. On the way of infection
- B. On the age of the infected person
- C. On the place of infection
- D. On the country of origin of the infection
- E. —

2. How does the cutaneous form of anthrax start?

- A. With papule or vesicle
- B. With ulcerated lesion
- C. With black eschar
- D. With regional lymphadenopathy
- E. —

3. What is the presentation of the inhalational form of anthrax?

- A.** Fever, sweats, cough, chest pain, headache, myalgia, nausea, and vomiting
- B.** Hypotension, dyspnoea, hypoxia, cyanosis
- C.** Lymphadenitis, haemorrhagic pneumonia, haemorrhagic pleural effusions, and toxæmia
- D.** Severe abdominal pain, massive ascites, hematemesis
- E.** —

4. Which form of anthrax causes the highest rate of mortality?

- A.** Meningitis
- B.** Inhalational
- C.** Gastrointestinal
- D.** Cutaneous
- E.** —

5. Injection anthrax can only occur among injecting heroin users

- A.** False
- B.** True
- C.** Not given
- D.** —
- E.** —

6. The lowest mortality rate happens for the cutaneous form of anthrax

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

7. Gastrointestinal anthrax can have two syndromes.

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

8. The treatment of anthrax does not exist

- A.** Not given
- B.** True
- C.** False
- D.** —
- E.** —

9. Choose the correct statement

- A.** Cutaneous form presents with the formation of black eschar
- B.** Cutaneous form presents only with the formation of papule or vesicle
- C.** Cutaneous form is painless
- D.** Patients with the cutaneous form of anthrax always have associated fever, lymphangitis, and extensive oedema.
- E.** —

10. Choose the correct statement

- A.** Inhalational form of anthrax progresses over less than a week
- B.** Inhalational form of anthrax is always lethal
- C.** Inhalational form of anthrax always has a period of improvement
- D.** Chest radiography in case of the inhalational form of anthrax always shows pleural effusions or infiltrates
- E.** —

11. A 50-year-old man suddenly developed intense palpitations, pain in the heart, acute weakness, increased blood pressure, and an irregular pulse with pulse deficit. ECG shows f-waves instead of a P wave; R-R intervals are irregular. What heart rhythm disorder is observed in the patient?

- A.** Ciliary arrhythmia
- B.** Respiratory sinus arrhythmia
- C.** Paroxysmal tachycardia
- D.** Transverse heart block
- E.** Sinus extrasystole

12. A patient with chronic heart failure developed signs of pulmonary edema. What diuretic must be prescribed to the patient for rapid correction of this complication?

- A.** Furosemide
- B.** Spironolactone
- C.** Clopamide
- D.** Diacarb (Acetazolamide)
- E.** Triamzid

13. One of the rules of surgery is to make incisions along the so-called Langer's lines (lines of skin tension).

What tissue forms the strongest layer of the dermis — the reticular dermis?

- A. Dense irregular connective tissue
- B. Reticular connective tissue
- C. Loose fibrous connective tissue
- D. Epithelial tissue
- E. Dense regular connective tissue

14. A patient at the oncology department has undergone radiation therapy. After that, morphology detected a significant disruption in the process of regeneration of epithelial layer in the small intestine mucosa. What cells of the epithelial membrane are damaged in this case?

- A. Columnar epitheliocytes without a brush border, located in the crypts
- B. Columnar epitheliocytes with a brush border
- C. Goblet exocrinocytes
- D. Endocrine cells
- E. Exocrinocytes with acidophilic granulation (Paneth cells)

15. Examination shows that the patient's sternocleidomastoid muscle and the upper edge of the trapezius muscle suffer from atrophy. Turning the head into the opposite direction is problematic. What nerve is affected in this case?

- A. Accessory nerve
- B. Vagus nerve
- C. Intercostal nerve
- D. Brachial plexus
- E. Hypoglossal nerve

16. As a result of industrial exposure to chromium compounds, a woman has developed allergic dermatitis on both her hands. What skin cells are mainly involved in the manifestation of this disease?

- A. Tissue basophils
- B. Plasma cells
- C. Macrophages
- D. Neutrophils
- E. Lymphocytes

17. A surgeon suspects inflammation of the Meckel's diverticulum in a

10-year-old child. This condition requires a surgical intervention. What part of the intestine must be inspected to find the diverticulum?

- A. 1 meter of the ileum, starting from the place of its confluence with the large intestine
- B. 0.5 meters of jejunum, starting from the ligament of Treitz
- C. Descending colon
- D. Ascending colon
- E. 20 cm of the ileum, starting from the ileocecal angle

18. After an intracerebral hemorrhage, the patient's speech became indistinct. Sound production in the larynx and movements of the lower jaw are retained. The nuclei of what nerves have been affected by the hemorrhage in this case?

- A. *Nuclei n. hypoglossi*
- B. *Nuclei n. vagi*
- C. *Nuclei n. accessorii*
- D. *Nuclei n. facialis*
- E. *Nuclei n. glossopharyngeus*

19. A person with dilated subcutaneous veins clearly visible in the area of the navel ("caput medusae") has been hospitalized. What large vein has impaired patency in this case?

- A. *V. portae hepatis*
- B. *V. mesenterica superior*
- C. *V. mesenterica inferior*
- D. *V. iliaca interna*
- E. *V. renalis*

20. A man has an impairment of a certain part of his central nervous system, which manifests as asthenia, muscle dystonia, and a balance disorder. What part of the central nervous system is affected in this case?

- A. Cerebellum
- B. Substantia nigra
- C. Reticular formation
- D. Red nuclei
- E. Vestibular nuclei

21. A person with suspected liver abscess has been admitted into the surgical department of a hospital. This person was on a business trip in one of the African countries for a long time and repeatedly had been suffering from an acute gastrointestinal disease. What protozoan disease is likely in this patient?

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

22. Increased levels of angiotensin II have been detected in the blood of a patient with a hypertensive crisis. The pressor effect of angiotensin is associated with the:

- A.** Contraction of arteriolar muscles
- B.** Activation of biogenic amine synthesis
- C.** Hyperproduction of prostaglandins
- D.** Stimulation of vasopressin production
- E.** Activation of the kallikrein-kinin system

23. A poisoning caused by sulema (mercury dichloride) has occurred at a factory. Two days later, the person, who had suffered from the sulema exposure, developed the 24-hour diuresis of 620 mL, headache, vomiting, convulsions, and dyspnea. What diagnosis can be made in this case?

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

24. The cardiology department has received a patient with complaints of tachycardia, shortness of breath, and cyanotic mucosa. Examination detects leg edemas and ascites. What drug must be prescribed to the patient in this case?

- A.** Corglycon (Convallaria glycosides)
- B.** Cordiamine (Nikethamide)
- C.** Adrenaline hydrochloride
- D.** Digitoxin
- E.** No-spa (Drotaverine)

25. A histological specimen of an eyeball shows a biconvex structure, connected to the ciliary body with the fibrous strands of the ciliary zonule and covered on top with a transparent capsule. What structure is it?

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

26. Monoamine oxidase inhibitors are widely used as psychotropic drugs. In the synapses, they change the levels of all the neurotransmitters listed below, except:

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

27. Two weeks ago, an illness was reported in several children at the orphanage. Based on the description of its clinical manifestations and epidemiological data, the epidemiologist suspects an outbreak of measles infection. What type of laboratory analysis can confirm this provisional diagnosis?

- A.** Serology
- B.** Rhinocytoscopy
- C.** Immunofluorescence
- D.** Inoculation of chicken embryos
- E.** Allergy testing

28. A 56-year-old woman complains of pain in the small joints of her hands and feet. She has been experiencing these symptoms for the last 12 years. Examination of her hands detects a subluxation of the metacarpophalangeal joints with fingers bent outwards ("walrus

flippers"). There are high molecular weight immune complexes in the patient's blood. What diagnosis can be made in this case?

- A. Rheumatoid arthritis
- B. Rheumatic polyarthritis
- C. Systemic lupus erythematosus
- D. Dermatomyositis
- E. Gouty arthritis

29. A 65-year-old man with liver cirrhosis developed a significant decrease in blood pressure. What mechanism can be the cause of arterial hypotension in this case?

- A. Reduced angiotensinogen synthesis in the liver
- B. Disturbed production of bile acids in the liver
- C. Increased urea synthesis in the liver
- D. Disturbed antitoxic function of the liver
- E. Reduced synthesis of transport proteins in the liver

30. Autopsy shows clinical presentation of diffuse osteoporosis with foci of bone tissue destruction. In the bone marrow, proliferation of atypical plasma cells can be observed. Bence Jones protein is detected in urine. What diagnosis can be made in this case?

- A. Multiple myeloma
- B. Osteoporosis
- C. Osteodystrophy
- D. Lymphogranulomatosis
- E. Bekhterev disease (ankylosing spondylitis)

31. A person with a head injury in the temporal region has been diagnosed with an epidural hematoma. What artery is most likely to be damaged in this case?

- A. Middle meningeal artery
- B. Middle cerebral artery
- C. Superficial temporal artery
- D. Anterior meningeal artery
- E. Posterior auricular artery

32. In the removed uterus of a 55-year-old woman, a pathologist has found a dense node in the thick of the myometrium. The node is 5 cm in diameter and has clear boundaries. On section, its tissues are gray-pink and fibrous. Microscopically, the tumor consists of smooth muscle cells that form bundles of varying thickness, which run in different directions, and of layers of connective tissue, hyalinized in some places. What tumor has developed in the patient?

- A. Fibromyoma
- B. Fibroma
- C. Fibrosarcoma
- D. Myosarcoma
- E. Rhabdomyoma

33. During a blood transfusion, intravascular hemolysis of erythrocytes started developing in the patient. What type of hypersensitivity has developed in this patient?

- A. Type II hypersensitivity (antibody-dependent)
- B. Type I hypersensitivity (anaphylactic)
- C. Type III hypersensitivity (immune complex)
- D. Type IV hypersensitivity (cell-mediated cytotoxicity)
- E. Type V hypersensitivity (granulomatosis)

34. Zoliclons (monoclonal antibodies) were used to determine the person's blood group according to the ABO system. Erythrocyte agglutination did not occur with any of the zoliclons. What blood type does this person have?

- A. 0 (I)
- B. A (II)
- C. B (III)
- D. AB (IV)
- E. —

35. A 3-year-old child has an acute intestinal infection with profuse diarrhea, followed by the

development of anhydremic shock. What is the leading link in the development of this complication?

- A. Hypovolemia
- B. Reduced cardiac output per minute
- C. Decreased arterial pressure
- D. Hypoxia
- E. Intoxication

36. Diphtheria toxin is a potent inhibitor of protein synthesis in eukaryotes. What is its molecular mechanism of action?

- A. Irreversible modification of an elongation factor
- B. Protein kinase phosphorylation
- C. Protein kinase inhibition
- D. Inactivation of the initiation factor
- E. Dephosphorylation of the termination factor

37. Five hours after eating seafood, a 22-year-old woman developed small itchy papules on the skin of her torso and distal parts of her limbs. The papules were partially merging with each other. 24 hours later, the rash spontaneously disappeared. What mechanism of hypersensitivity underlies these changes?

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

38. A 27-year-old parturient woman undergoes a complicated childbirth with impending cervical rupture. What pain relief medicine would be the safest in this case?

- A. Promedol (Trimeperidine)
- B. Fentanyl
- C. Analgin (Metamizole)
- D. Morphine hydrochloride
- E. Diazepam

39. Elevated blood homocysteine is a risk factor for cardiovascular pathology. This amino acid is formed

in the body from:

- A. Methionine
- B. Cysteine
- C. Alanine
- D. Folic acid
- E. Cystine

40. A woman, who complains of a constant feeling of fear and anxiety, has been diagnosed with neurosis and prescribed a drug with an anxiolytic effect. What drug is it?

- A. Diazepam
- B. Ginseng tincture
- C. Piracetam
- D. Aminazine (Chlorpromazine)
- E. Caffeine and sodium benzoate

41. A 48-year-old woman has been diagnosed with Raynaud syndrome (a spasm of peripheral blood vessels) and prescribed an adrenotropic agent. What group does this drug belong to?

- A. Alpha-blockers
- B. Beta-1-blockers
- C. Beta-1-adrenergic agonists
- D. Alpha/beta-adrenergic agonists
- E. Beta-2-blockers

42. In an experiment, despiralization of the DNA molecule was disrupted in an animal cell. What processes will primarily stop occurring in this cell?

- A. Transcription
- B. Translation
- C. Repair
- D. Processing
- E. Termination

43. An increase in the circulating blood volume under the influence of aldosterone and antidiuretic hormone leads to the activation of secretion of a certain substance. What substance is it?

- A. Atrial natriuretic peptide
- B. Melatonin
- C. Angiotensin II
- D. Angiotensinogen
- E. Renin

44. During the surgery for a femoral hernia, the doctor operates within the borders of the femoral triangle. What structure forms its upper border?

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

45. Genealogical analysis of a family with a hereditary pathology of optic nerve atrophy has determined that this medical condition is passed on only by the mothers, both girls and boys can be affected, and the sick father does not pass on the disease to his daughters or sons. What type of hereditary disease is it?

- A.** Mitochondrial
- B.** X-linked dominant
- C.** X-linked recessive
- D.** Autosomal dominant
- E.** Autosomal recessive

46. Oral mucosa sometimes can be traumatized during tooth brushing. However, such bleeding quickly stops by itself due to the presence of the following in the saliva:

- A.** Procoagulants
- B.** Lipolytic enzymes
- C.** Amylolytic enzymes
- D.** Minerals
- E.** Lysozyme and mucin

47. Participation of a certain part of the central nervous system is mandatory for the formation of voluntary defecation in a child. What part of the central nervous system is it?

- A.** Cerebral cortex
- B.** Lateral nuclei of the hypothalamus
- C.** Ventromedial nuclei of the hypothalamus
- D.** Medulla oblongata
- E.** Coccygeal segments of the spinal cord

48. When stimulation frequency of an isolated heart of a rabbit increases, incomplete relaxation of the ventricles of the heart can be observed because of:

- A.** Accumulation of calcium in cardiomyocytes
- B.** Increased sodium levels in cardiomyocytes
- C.** Inhibition of the sodium–potassium pump
- D.** Increased potassium levels in cardiomyocytes
- E.** Increased potassium levels in the interstitium

49. IgM to the rubella virus have been detected in a pregnant woman. Based on these findings, the obstetrician-gynecologist recommended terminating the pregnancy due to the high probability of teratogenic effects on the fetus. It is important that specifically IgM have been detected, because immunoglobulins of this class:

- A.** Are an indicator of recent infection
- B.** Can breach the placental barrier
- C.** Have the largest molecular mass
- D.** Are associated with anaphylactic reactions
- E.** Are the main factor of antiviral protection

50. A patient has been diagnosed with a myocardial infarction. His blood was tested for the activity of cardiospecific enzymes. Which one among the detected enzymes has three isoforms?

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