

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

Edward Jenner

Edward Jenner was born in 1749. He was an English physician, the discoverer of vaccination. Jenner studied medicine in London. He began his practice in 1773 when he was twenty-four years old.

Edward Jenner liked to observe and investigate ever since he was a boy. His persistent scientific work resulted in the discovery of vaccination against smallpox. Today cases of smallpox are very rare because every infant when it is about a year old is vaccinated against this disease. The vaccination is effective for a prolonged period of time.

In Jenner's days, one out of every five persons in London carried the marks of this disease on his face. But there were few people who recovered from the disease because in the 18th century smallpox was one of the main causes of death.

The disease had been common for centuries in many countries of Asia. The Turks had discovered that a person could be prevented from a serious attack of smallpox by being infected with a mild form of the disease.

One day Jenner heard a woman say: «I cannot catch smallpox, I've had cowpox». That moment led to Jenner's continuous investigations and experiments.

The first child whom Jenner introduced the substance from cowpox vesicles obtained from the wound of a diseased woman was Jimmy Phipps. It was in 1796. For the following two years, Jenner continued his experiments. In 1798 he published the report on his discovery. He called his new method of preventing smallpox «vaccination», from the Latin word vacca, that is «a COW».

At first, people paid no attention to his discovery. One doctor even said that vaccination might cause people to develop cow's faces.

But very soon there was no part of the world that had not taken up vaccination. Thousands of people were given vaccination and smallpox began to disappear as if by magic.

1. The invention of Jenner became very popular right away.

- A. False
- B. True
- C. —
- D. —
- E. —

2. Back in the 18th century it was difficult to recover from smallpox.

- A. True
- B. False
- C. —
- D. —
- E. —

3. Jenner met the woman, who discovered vaccination from smallpox.

- A. False
- B. True
- C. —
- D. —
- E. —

4. Smallpox is still common nowadays, but less than in the 18th century.

- A. False
- B. True
- C. —
- D. —
- E. —

5. Jenner's vaccine helped to treat smallpox.

- A. False
- B. True
- C. —
- D. —
- E. —

6. The vaccine was made from the blood of people who recovered from smallpox.

- A. False
- B. True
- C. —
- D. —
- E. —

7. The vaccine is based on the substance from vesicles which appeared as a result of cowpox.

- A. True
- B. False
- C. —
- D. —
- E. —

8. Jenner's vaccine had one side effect — people were developing cow's faces.

- A. False
- B. True
- C. —
- D. —
- E. —

9. Choose the correct statement.

A. The vaccine is effective for a long time

B. Adult people cannot get a smallpox

C. Children get vaccinated from smallpox in school-age

D. —

E. —

10. Choose the correct statement.

A. When he was twenty-four, Edward Jenner started to work as a doctor

B. When he was twenty-four, Edward Jenner created a vaccine

C. When he was twenty-four, Edward Jenner had smallpox

D. —

E. —

11. A girl provisionally diagnosed with Turner syndrome made an appointment with a genetic consultancy. What genetic method of diagnostics can confirm this diagnosis?

A. Sex chromatin identification

B. Genealogy

C. Hybridology

D. Biochemistry

E. Dermatoglyphics

12. Ribosomes are the organelles that bind amino acid residues into a polypeptide chain. The number of ribosomes in the cells of different organs varies and depends on the function of the organ. What organ has the highest ribosome count in its cells?

A. Secretory cells of the pancreas

B. Urinary bladder

C. Epithelium of the renal tubules

D. Outermost layer of epidermis

E. Epithelium of the small intestine

13. When a newborn baby feeds, milk gets into the baby's nasal cavity. What is the most likely cause of this pathological condition?

- A. Cleft palate
- B. Right-sided nasal septum deviation
- C. Basilar skull fracture
- D. Cleft lip
- E. Left-sided nasal septum deviation

14. A patient cannot lift the lowered mandible. What muscles fail to perform their function in this case?

- A. Masticatory muscles
- B. Mimic muscles
- C. Orbicularis oris muscle
- D. Epicranius muscle
- E. Levator anguli oris muscle

15. A patient feels pain and numbness in the gums of the upper jaw. What nerves are most likely to be damaged in this case?

- A. *Nn. alveolaris superiores (n. maxillaris)*
- B. *N. alveolaris inferior*
- C. *N. buccalis*
- D. *N. lingualis*
- E. *N. facialis*

16. As a result of an injury, an area of the oral cavity was damaged. This area can be divided into the maxillary, intermediate, and mandibular zones. What part of the oral cavity is damaged?

- A. Cheek
- B. Tongue
- C. Lip
- D. Hard palate
- E. Soft palate

17. A section of a multi-rooted tooth shows a tissue located at the apices of the dental roots and in the place of their branching. This tissue contains cells with processes located in the lacunae, and numerous collagen fibers arranged radially or longitudinally. Name this tissue:

- A. Cellular cement
- B. Reticulofibrous bone tissue
- C. Dentin
- D. Enamel
- E. Dense connective tissue

18. Examination of a 40-year-old woman detected increased basal metabolism. What hormone levels are excessive in this woman, causing her pathological condition?

- A. Triiodothyronine
- B. Thyrocalcitonin
- C. Glucagon
- D. Aldosterone
- E. Somatostatin

19. In an experiment, an excitable cell was placed into a saline solution without sodium ions. How will it change the development of action potential in the cell?

- A. Action potential does not develop
- B. Amplitude of the action potential decreases
- C. Amplitude of the action potential increases
- D. Duration of the action potential increases
- E. Duration of the action potential decreases

20. A patient was diagnosed with multiple myeloma. Total blood protein is 180 g/L. What proteins, present in the body, are the cause of such total protein value?

- A. Bence-Jones protein
- B. Albumins
- C. Haptoglobin
- D. Immunoglobulins
- E. Transferrin

21. What is the secondary mediator in the mechanism of action of adrenaline?

- A.** Cyclic adenosine monophosphate
- B.** Cyclic guanosine monophosphate
- C.** Cyclic uridine monophosphate
- D.** Cyclic thymidine monophosphate
- E.** Cyclic cytidine monophosphate

22. A 58-year-old man presents with the clinical picture of acute pancreatitis. This diagnosis can be confirmed by high levels of a certain substance in the patient's urine. Name this substance:

- A.** Amylase
- B.** Residual nitrogen
- C.** Urea
- D.** Albumin
- E.** Uric acid

23. A patient was diagnosed with a malignant neoplasm of the tongue. What characteristics of this tumor make it possible to classify it as a malignant one?

- A.** Infiltrative growth
- B.** Expansive growth
- C.** Anaplasia
- D.** Positive Pasteur effect
- E.** Increased number of mitotic cells

24. A 43-year-old woman against the background of septic shock presents with thrombocytopenia, low fibrinogen levels, fibrin degradation products in the blood, and development of petechial hemorrhages. What is the cause of these pathological signs?

- A.** DIC syndrome
- B.** Autoimmune thrombocytopenia
- C.** Hemorrhagic diathesis
- D.** Impaired platelet production
- E.** Exogenous intoxication

25. A 53-year-old woman has height of 163 cm, body weight of 92 kg, uniform fat deposition, and puffy face. She is inactive and apathetic. Pressing the front surface of her

lower leg leaves an indentation. What gland is dysfunctional in this woman, causing her pathological condition?

- A.** Thyroid gland
- B.** Pituitary gland
- C.** Adrenal glands
- D.** Gonads
- E.** Parathyroid glands

26. A cytochrome oxidase blocker was given to a test animal, causing its instant death. What chemical can cause these changes?

- A.** Potassium cyanide
- B.** Potassium nitrite
- C.** Potassium sulfate
- D.** Potassium phosphate
- E.** Potassium oxalate

27. A patient has a long history of dental caries. The pulp of the affected tooth started to resemble a gray-black mass with a putrid odor. Microscopically, it is unstructured and contains microbes. What pathological process has developed in the dental pulp in this case?

- A.** Pulp gangrene
- B.** Purulent pulpitis
- C.** Serous pulpitis
- D.** Granulating pulpitis
- E.** Fibrous pulpitis

28. After an injury, the patient developed a focus of purulent inflammation in the alveolar process of the jaw in its outward area, with the development of subperiosteal abscess and edema of the adjacent soft tissues. What is the most likely diagnosis in this case?

- A.** Purulent periostitis
- B.** Serous periostitis
- C.** Chronic fibrous periostitis
- D.** Chronic hyperplastic periostitis
- E.** Ossifying periostitis

29. A patient has made an

appointment with a dentist. A cavity was detected in the softened dentin of his premolar. A narrow layer of dentin remains between the carious cavity and the pulp. What is the most likely diagnosis in this case?

- A. Deep caries
- B. Superficial caries
- C. Median caries
- D. White spot lesion
- E. Fluorosis

30. What infectious-allergic disease is associated with the development of bilateral diffuse or focal non-purulent inflammation of the glomerular apparatus of the kidneys with characteristic renal and extrarenal symptoms?

- A. Glomerulonephritis
- B. Pyelonephritis
- C. Nephrolithiasis
- D. Polycystic kidney disease
- E. Nephrosclerosis

31. During the extraction of a carious tooth, the dental surgeon found a gray-pink soft-elastic nodule 1.3 cm in diameter in the area of the dental root. Microscopically, the nodule is represented by granulation tissue with lymphocytes, plasma and mast cells, macrophages, xanthoma cells, and fibroblasts. What pathological neoplasm can be suspected in this case?

- A. Simple granuloma
- B. Eosinophilic granuloma
- C. Cystogranuloma
- D. Epithelial granuloma
- E. Granulating periodontitis

32. A 6-year-old child with suspected active tuberculosis has undergone Mantoux test. What immunobiological substance was administered for this purpose?

- A. Tuberculin
- B. BCG vaccine
- C. DPT vaccine
- D. Tularin
- E. DT vaccine

33. Serological diagnostics of influenza requires the measurement of an increase in the titer of antibodies to the pathogen in the patient's blood serum. How many times should the titer of antibodies in the paired serum samples increase for the result to be considered credible?

- A. 4 times or more
- B. 2 times
- C. 3 times
- D. By half
- E. —

34. During examination, a 7-year-old child was diagnosed with multiple caries by the dentist. What medicine should be recommended for caries prevention in this case?

- A. Calcium glycerophosphate
- B. Calcium gluconate
- C. Calcium chloride
- D. Calcium hydroxide
- E. Calmecin

35. A patient developed hypersalivation during dental manipulations. What group of medicines reduces this phenomenon?

- A. Cholinergic antagonists
- B. Cholinergic agonists
- C. Adrenergic antagonists
- D. Adrenergic agonists
- E. Astringents

36. A glucocorticoid ointment has been prescribed to a patient for periodontitis treatment. Name this medicine:

- A.** Prednisolone
- B.** Tetracycline
- C.** Decamin (Dequalinium)
- D.** Ampicillin
- E.** Erythromycin

37. A person, who came to a hospital with complaints of diarrhea, was diagnosed with amoebic dysentery. Tetracycline was prescribed to the patient as a part of complex treatment. Name the type of action of this medicine:

- A.** Etiotropic
- B.** Direct
- C.** Reflex
- D.** Primary
- E.** Irreversible

38. During examination of the patient's oral cavity, the dentist noticed the presence of a carious spot in the area of the linguodistal groove on the masticatory surface of the first upper right molar. This groove separates the following structure:

- A.** Hypocone
- B.** Paracone
- C.** Metacone
- D.** Mesocone
- E.** Protocone

39. During laboratory testing of the blood of a deceased person, the forensic pathologist diagnosed cyanide poisoning. What was the cause of death in this case?

- A.** Methemoglobin production
- B.** Carboxyhemoglobin production
- C.** Carbhemoglobin production
- D.** Production of reduced hemoglobin
- E.** A change in blood pH

40. After a removal of the pyloric part of the stomach, a person may develop anemia. What is the cause of pathological condition development in this case?

- A.** Lack of intrinsic Castle factor
- B.** Impaired absorption of vitamin D
- C.** Impaired absorption of vitamin C
- D.** Impaired absorption of vitamin E
- E.** Bone marrow dysfunction

41. Filopodia of megakaryocytes pass through the pores of the sinusoidal capillaries of the red bone marrow into the lumen of blood vessels, where they are fragmented into individual laminae. What blood corpuscles are formed this way?

- A.** Platelets
- B.** Erythrocytes
- C.** Lymphocytes
- D.** Reticulocytes
- E.** Monocytes

42. A patient was diagnosed with acute glomerulonephritis. What substance in the urine indicates a damage to the basement membrane of the renal glomerular capillaries in case of this pathology?

- A.** Protein
- B.** Fructose
- C.** Indican
- D.** Creatine
- E.** 17-ketosteroids

43. The prisoner, who went on a hunger strike, developed edemas. What is the mechanism of edema development in this case?

- A.** Decreased oncotic blood pressure
- B.** Increased hydrostatic venous pressure
- C.** Decreased hydrostatic tissue pressure
- D.** Reduction in circulating blood volume
- E.** Increased oncotic tissue pressure

44. A patient was diagnosed with

meningitis. A puncture of the subarachnoid space is necessary. This space can be located between the following structures:

- A.** Arachnoid mater and pia mater
- B.** Dura mater and arachnoid mater
- C.** Periosteum and dura mater
- D.** Periosteum and arachnoid mater
- E.** —

45. A second deciduous molar was extracted in a 13-year-old child. What permanent tooth will erupt in its place?

- A.** Second premolar
- B.** First premolar
- C.** First molar
- D.** Second molar
- E.** Third molar

46. A 60-year-old man with diabetes mellitus is prescribed insulin. What type of pharmacological therapy is it?

- A.** Substitution
- B.** Pathogenetic
- C.** Etiotropic
- D.** Symptomatic
- E.** Preventive

47. An enzyme that binds with the substrate uses only a part of its molecule to interact with it. Name this part of the enzyme molecule:

- A.** Active site
- B.** Segment of a polypeptide chain
- C.** Coenzyme
- D.** Cofactor
- E.** Allosteric site

48. Name the specific phase of action potential, characteristic of typical cardiomyocytes:

- A.** Slow repolarization (plateau)
- B.** Systolic repolarization
- C.** Slow diastolic repolarization
- D.** Rapid diastolic depolarization
- E.** Rapid systolic depolarization

49. Histological microslide shows cells that form isogenic groups. The intercellular substance contains glycoproteins, proteoglycans, and collagen fibers. What tissue is it?

- A.** Cartilaginous tissue
- B.** Bone tissue
- C.** Mucous tissue
- D.** White adipose tissue
- E.** Brown adipose tissue

50. Replication is one of the reactions of matrix synthesis. What new molecule is formed from a DNA molecule in the process of replication?

- A.** DNA
- B.** mRNA
- C.** Pro-mRNA
- D.** tRNA
- E.** rRNA