



**STATE NON-PROFIT ENTERPRISE
«TESTING BOARD FOR PROFESSIONAL COMPETENCE ASSESSMENT OF
HIGHER EDUCATION TRAINEES IN MEDICINE AND PHARMACY AT THE
MINISTRY OF HEALTH OF UKRAINE»**

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**TEST ITEMS
FOR THE UNIFIED STATE QUALIFICATION EXAM**

STAGE 1

ENGLISH LANGUAGE PROFICIENCY TEST

STOMATOLOGY

I. Read the text and answer 10 questions to it.**Big business**

As the 19th century progressed, advances in chemical and industrial processes enabled the manufacture of drugs to treat the ailments of the large populations crowding into new urban centres. In 1828, German chemist Friedrich Wohler synthesized an organic substance, urea, from inorganic elements. This refuted the prevailing belief that organic substances could only be produced from living organisms. It also suggested that medicines based on organic compounds could be synthesized from inorganic materials. A breakthrough moment came in 1856, when 18-year-old British chemistry student William Henry Perkin, tasked with finding a way to synthesize quinine, accidentally made the first synthetic dye, a deep purple which he called mauveine. Other synthetic dyes soon followed, fuelling a major new dyestuff and fashion industry. By the mid-19th century, it was clear that many of these dyes had medical applications and large dye-making companies, such as CIBA and Geigy in Switzerland, and Hoechst and Bayer in Germany, began to market them as pharmaceuticals, redirecting their chemical capabilities towards the production of synthesized drugs. Bayer began producing aspirin in 1899, and Hoechst launched Salvarsan, the first effective drug for syphilis, in 1910. Salvarsan marked the development of a new range of "magic bullet" targeted chemical drugs. Designed to lock on to specific disease-causing pathogens, these drugs left the rest of the body unharmed. During the 20th century, the development of synthetic insulin formulas to manage diabetes, the production of vaccines, and the manufacture of antibiotics, such as penicillin, turned pharmaceuticals into a lucrative global industry. Yet the use of drugs as a core treatment for ailments, the methods of their production, and the essence of their action, still draw on the basic approach and principles outlined by Paracelsus.

1. What was significant about Hoechst's launch of Salvarsan in 1910?

- A. It was the first effective treatment for syphilis
- ☒ B. It was the first synthetic dye
- C. It was the first vaccine
- D. It was the first antibiotic

2. Choose the correct statement:

- A. Salvarsan was discovered accidentally while searching for a vaccine
- B. Salvarsan was developed by CIBA to treat tuberculosis
- C. Salvarsan was the first effective treatment for diabetes
- ☒ D. Salvarsan was the first drug specifically designed to target pathogens

3. Which industry emerged as a result of Perkin's discovery?

- ☒ A. The pharmaceutical industry
- ☐ B. The textile industry
- ☐ C. The dyestuff and fashion industry
- ☐ D. The food industry

4. What did dye-making companies such as CIBA, Geigy, Hoechst, and Bayer begin to produce by the mid-19th century?

- ☐ A. Agricultural chemicals
- ☐ B. Synthetic dyes for art
- ☐ C. Natural herbal remedies
- ☒ D. Pharmaceuticals from synthetic dyes

5. What advancements in the 20th century helped establish pharmaceuticals as a major global industry?

- ☐ A. The invention of surgical techniques
- ☐ B. The development of synthetic insulin, vaccines, and antibiotics
- ☐ C. The discovery of vitamins
- ☐ D. The creation of herbal medicine

6. The principles used in modern drug production are entirely different from those outlined by Paracelsus.

- ☐ A. False
- ☐ B. Not given
- ☒ C. True

7. What did Friedrich Wohler's synthesis of urea demonstrate?

- ☐ A. Organic compounds could be created from inorganic materials
- ☐ B. Medicines must be derived from natural sources
- ☐ C. Organic substances could only come from animals
- ☐ D. Only plants could produce organic substances

8. What significant discovery did William Henry Perkin make in 1856?

- ☒ A. The first synthetic drug
- ☐ B. The first synthetic dye, mauveine
- ☐ C. A method to synthesize aspirin
- ☐ D. A cure for syphilis

9. Salvarsan was the first antibiotic developed to treat bacterial infections.

- ☐ A. Not given
- ☐ B. False
- ☒ C. True

10. What is meant by "magic bullet" drugs?

- ☐ A. Drugs that are naturally sourced
- ☐ B. Drugs that cure multiple diseases at once
- ☐ C. Drugs that can be used for any illness
- ☐ D. Drugs that only affect harmful pathogens

II. Choose the right answer.

11. What causes anemia in patients with chronic glomerulonephritis?

- A. Decreased erythropoietin synthesis
- B. Iron deficiency in hemoglobin synthesis
- C. Erythrocyte loss with urine
- D. Increased destruction of normal erythrocytes
- E. Hemolysis of erythrocytes

12. In a 40-year-old parturient woman, weak labor activity is caused by poor contractile ability of the myometrium. What hormone drug should be prescribed for this patient to increase her labor activity?

- A. Aldosterone
- B. Hydrocortisone
- C. Oxytocin
- D. Prednisolone
- E. Dexamethasone

13. After one week of starvation, blood glucose of a person remains at a sufficient level. What process activates in such cases, causing this phenomenon?

- A. Gluconeogenesis
- B. Glycolysis
- C. Glycogenolysis
- D. Glycogen phosphorylation
- E. Tricarboxylic acid cycle

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

- A. Biochemistry
- B. Hybridology
- C. Genealogy
- D. Dermatoglyphics
- E. Sex chromatin identification

15. 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. Exogenous intoxication
- C. Autoimmune thrombocytopenia
- D. Impaired platelet production
- E. Hemorrhagic diathesis

16. To eliminate the pain syndrome in a patient with myocardial infarction, the doctor prescribed him an analgesic. The patient's condition improved, but over time he developed euphoria and miosis. The doctor observes respiratory depression in the patient. What drug was prescribed in this case?

- A. Morphine
- B. Ibuprofen
- C. Metamizole sodium
- D. Paracetamol
- E. Meloxicam

17. For early detection of a pregnancy, a urinalysis is performed. What hormone is likely to indicate pregnancy, if it is present in the woman's urine?

- A. Estriol
- B. Testosterone
- C. Chorionic gonadotropin
- D. Progesterone
- E. Aldosterone

18. A 37-year-old man has been diagnosed with dilation of

the subcutaneous veins of the anterior thoracic and abdominal wall, intestinal hemorrhages, and splenomegaly. What pathological condition is observed in the patient?

- A. Hypertensive syndrome
- B. Right ventricular failure
- C. Portal hypertension syndrome
- D. Left ventricular failure
- E. Ascites

19. A neurologist has detected inflammation of the chorda tympani in a 28-year-old woman. What skull bone contains the canal of the inflamed nerve?

- A. Zygomatic
- B. Temporal
- C. Ethmoid
- D. Palatine
- E. Sphenoid

20. A 40-year-old man was hospitalized with a closed bone fracture in his left lower leg and died on the third day of the hospitalization. Autopsy of the body reveals deep vein thrombosis in the left lower leg. The lumina of the pulmonary artery branches were obstructed by red masses. What complication has caused the patient's death?

- A. Tissue embolism
- B. Pulmonary thromboembolism
- C. Gas embolism
- D. Foreign body embolism
- E. Air embolism

21. A 60-year-old man with diabetes mellitus has been prescribed insulin. What type of pharmacotherapy is it?

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

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

- A. Chronic hyperplastic periostitis
- B. Serous periostitis
- C. Chronic fibrous periostitis
- D. Purulent periostitis
- E. Periostitis ossificans

23. A 35-year-old woman developed anaphylactic shock, when receiving conduction anesthesia with lidocaine. What drug should be prescribed for this patient?

- A. Norepinephrine
- B. Prednisolone
- C. Nikethamide
- D. Epinephrine
- E. Atropine

24. A 40-year-old woman came to an endocrinologist with complaints of increased heart rate, bulging eyes, fatigability, and weight loss. What cells are most likely to have an overactive function in this case, causing the patient's condition?

- A. Parafollicular
- B. APUD cells
- C. Thyrocytes
- D. Parathyrocytes
- E. Acidophilic endocrine cells

25. A patient has 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. Purulent pulpitis
- B. Granulating pulpitis
- C. Fibrous pulpitis
- D. Serous pulpitis
- E. Pulp gangrene

26. A doctor at the surgery department of a hospital was vaccinated to prevent viral hepatitis B. What markers can be detected in blood serum after immunization against hepatitis B?

- ☒ A. HBsAg
- B. HBV DNA
- C. Anti-HBe
- D. HBcAg
- E. Anti-HBs

27. Damage to DNA can occur as a result of exposure to physical and chemical mutagens. What is the name of the ability, when cells can correct the damage in the DNA molecules?

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

28. A 25-year-old man has been diagnosed with HIV. What cells are affected in this case, causing the immunodeficiency?

- A. Suppressor T cells
- ☒ B. Helper T cells
- C. Mast cells
- D. Plasma cells
- E. Killer T cells

29. What pathological changes

will be observed in cases of poisoning with organophosphorus compounds, if their mechanism of action is associated with blocking cholinesterase?

- A. Mydriasis
- B. Miosis
- C. Dry mouth
- D. Tachycardia
- E. Anuria

30. Narrowing of the afferent arteriole of the renal corpuscle has caused a decrease in diuresis. What is the cause of this pathological condition?

- A. Decreased glucose reabsorption
- B. Decreased urea secretion
- C. Decreased water reabsorption
- D. Decreased reabsorption of sodium ions
- E. Decreased effective filtration pressure

31. A 40-year-old man had a tumor-like mass 8x7 cm in size on his neck. The surgeon could not completely remove this mass due to its intimate connection with large vessels. Microscopically, the following is observed: marked tissue and cellular atypia, lipoblast-like cells at various stages of maturity with polymorphism, hyperchromic nuclei, pathological mitoses, and necrotic foci. What histological form of tumor is it?

- A. Fibroma
- B. Fibrosarcoma
- ☒ C. Liposarcoma
- D. Lipoma
- E. Hibernoma

32. A 45-year-old man came to a neurologist. Objectively, he has facial immobility on the right, he cannot close his eye, the corner of his mouth is turned downwards,

saliva is leaking. What nerve is damaged in this case?

- ☐ A. First branch of the trigeminal nerve
- ☐ B. Accessory
- ☒ C. Facial
- ☐ D. Second branch of the trigeminal nerve
- ☐ E. Hypoglossal

33. After examination, a 32-year-old man has been diagnosed with acromegaly. What endocrine gland secretes its hormone in an excess, causing this pathological condition?

- ☐ A. Thyroid gland
- ☐ B. Neurohypophysis
- ☐ C. Adenohypophysis
- ☐ D. Pineal gland
- ☐ E. Adrenal glands

34. Inoculation of pus from a furuncle reveals spheric microorganisms arranged in "grape clusters". What bacteria have been detected in this case?

- ☒ A. Streptococci
- ☐ B. Diplococci
- ☐ C. Tetrads
- ☐ D. Staphylococci
- ☐ E. Micrococci

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

- ☐ A. Duration of the action potential decreases
- ☐ B. Duration of the action potential increases
- ☐ C. Amplitude of the action potential decreases
- ☒ D. No action potential will be generated
- ☐ E. Amplitude of the action potential increases

36. In an experiment, the vagus nerves are stimulated in the test animals. What changes will occur in their cardiac activity as a result?

- ☐ A. Positive chronotropic and negative inotropic effects
- ☐ B. Negative chronotropic and positive inotropic effects
- ☐ C. No changes
- ☐ D. Positive chronotropic and positive inotropic effects
- ☐ E. Negative chronotropic and negative inotropic effects

37. An 8-year-old girl underwent cytogenetic testing to confirm the diagnosis of Burkitt lymphoma. A transfer of a genetic locus from chromosome 8 to chromosome 14 was detected. What is this type of mutation called?

- ☒ A. Translocation
- ☐ B. Deletion
- ☐ C. Inversion
- ☐ D. Duplication
- ☐ E. Aneuploidy

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

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

39. A 45-year-old man came to an endocrinologist. Objectively, he has the height of 198 cm, long fingers, enlarged lower jaw, and drooping lower lip. Increased secretion of a certain hormone can be suspected in this case. Name this hormone.

- A. Thyroxine
- ✓ B. Somatotropin
- C. Catecholamines
- ✓ D. Aldosterone
- E. Gonadotropin

40. A patient developed hypersalivation during his visit to a dentist. What group of medicines reduces this phenomenon?

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

41. A 45-year-old woman with signs of acute medication poisoning needs forced diuresis. What drug should be prescribed for this purpose?

- A. Dichlothiazide (Hydrochlorothiazide)
- B. Diacarb (Acetazolamide)
- C. Spironolactone
- D. Triamterene
- E. Furosemide

42. A 30-year-old woman with purulent inflammation of the maxilla was prescribed an antibiotic by her dentist. This antibiotic binds to the 30S ribosomal subunit and inhibits its binding with various aminoacyl-

tRNAs. What antibiotic has such a mechanism of action?

- A. Erythromycin
- B. Tetracycline
- C. Chloramphenicol
- D. Puromycin
- E. Streptomycin

43. A histological specimen of the parathyroid gland shows parathyroid cells in its parenchyma. These cells produce a hormone that takes part in mineral metabolism. What is the function of this hormone?

- A. Increasing calcium levels in the blood
- B. Increasing potassium levels in the blood
- C. Decreasing potassium levels in the blood
- D. Decreasing calcium levels in the blood
- E. Regulation of sodium metabolism in the blood

44. A patient has been diagnosed with meningitis. A puncture of the subarachnoid space is necessary. This space can be located between the following anatomical structures:

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

45. As a result of the blockage of the common bile duct (detected radiologically), the flow of bile into the duodenum has stopped. What process can be expected to become impaired in this case?

- A. Hydrolysis of carbohydrates
- B. Inhibition of salivary secretion
- C. Hydrochloric acid secretion in the stomach
- D. Emulsification of lipids
- E. Absorption of proteins

46. A 48-year-old woman with a benign tongue tumor undergoes surgery to remove it. To avoid blood loss, the surgeon needs to access the lingual artery in the *trig. linguale* area (Pirogov's triangle) posteriorly and inferiorly. What anatomical structure forms this wall of the triangle?

- A. *M. styloglossus*
- B. *M. sternocleidomastoideus*
- C. *M. hypoglossus*
- D. *M. genioglossus*
- ☒ E. *M. digastricus*

47. When examining a group of people living in the same area, the dentist noticed that they had the same symptom of the disease — dark yellow pigmentation of the tooth enamel. What microelement can cause this pathological condition, if it is present in excess in the food or in the drinking water?

- A. Iodine
- B. Calcium
- C. Copper
- D. Fluorine
- E. Nickel

48. A 27-year-old man has been hospitalized with intra-abdominal bleeding caused by a fall and partial tear of the ligament that attaches the liver to the diaphragm. What ligament is it?

- A. Falciform
- B. Triangular
- C. Hepatogastric
- D. Coronary
- E. Round

49. What hemoglobin derivative can be detected in the blood of a person with carbon monoxide poisoning?

- A. Carboxyhemoglobin
- B. Oxyhemoglobin
- C. Verdohemoglobin
- D. Methemoglobin
- E. Carbbemoglobin

50. What pathological process in the oral cavity is pathogenetically associated with the Epstein-Barr virus?

- A. Pyogenic granuloma
- ☒ B. Oral hairy leukoplakia
- C. Oral erythroplakia
- D. Pleomorphic adenoma
- E. Squamous cell carcinoma