



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

Student ID								Surname											
4	2	0	1	1	0	0	2	4	Р	О	Р	Д	І	Ї	З	У	К		

Variant 19

**TEST ITEMS
FOR THE UNIFIED STATE QUALIFICATION EXAM
TEST COMPONENT
STAGE 1**

**PHARMACY, INDUSTRIAL PHARMACY
ENGLISH LANGUAGE PROFICIENCY TEST**

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

MUMPS

The causative agent is a filtrable virus. It is found in the saliva of patients, where it may be present for at least 24 hours before swelling of the salivary glands develops, and throughout the entire period of glandular enlargement. Spread is by droplet infections or direct contact with materials contaminated with infected saliva. Most cases occur in children between 5 and 15 years of age; the disease is unusual in children under 2 years. Infants up to 10 months ordinarily are immuned. However, the disease may occur at any age, and cases in the older age groups may be seen.

After an incubation period of 14 to 21 days onset is marked by chilly sensations, headache, anorexia and malaise. This is accompanied by a low to moderate fever which may last from 12 to 24 hours before any involvement of the salivary glands. In mild cases, these prodromal symptoms may be absent. Pain on chewing or swallowing is the earliest symptom of parotitis. There is marked sensitivity to pressure over the angle of the jaw. With development of parotitis, the temperature frequently rises to 103 or 104 F. Swelling of the gland reaches its maximum about the 2nd day and is associated with swelling, involving the cheek and area below the ear. In most cases, both parotid glands are involved. Occasionally the submaxillary and sublingual glands also may be swollen, or, more rarely, may be the only glands affected. In such cases, there is swelling of the neck beneath the jaw.

The diagnosis of typical cases during an epidemic is simple, but sporadic cases present a more difficult problem. Swelling of the parotid or other salivary glands due to the mumps virus must be distinguished from: (1) bacterial parotid involvement occurring in streptococcal throat infections, diphtheria, or debilitated patients with poor oral hygiene, typhoid or typhus fever; (2) malignant tumors of the salivary glands; (3) post-operative parotitis.

In uncomplicated mumps, prognosis is extent. However, relapses may occur occasionally after about 2 weeks. In complicated cases, deafness or facial paralysis has been known to occur following involvement of the nervous system.

1. Only parotid salivary glands can be affected in the case of mumps:

- A. True
 B. False

2. Choose the correct statement:

- A. Most cases of the disease occur in infants under ten months
 B. Most cases of the disease occur in children younger than two years old
 C. Most cases of the disease occur in children older than five years old

3. Choose the correct statement:

- A. The first symptom of parotitis is a headache
 B. The first symptom of parotitis is a pain when swallowing
 C. The first symptom of parotitis is fever

4. The virus which causes mumps can be found in the urine of the patients:

- A. False
 B. True

5. The virus is spreading with the saliva of the people, who are sick:

- A. False
 B. True

6. Usually, only one parotid gland is affected by the disease:

- A. False
 B. True

7. Mumps can be complicated with deafness:

- A. True
 B. False

8. It is always easy to diagnose this disease:

- A. True
 B. False

9. Elder people are immune to mumps:

- A. False
- B. True

10. In some cases, mumps must be distinguished from diphtheria:

- A. False
- B. True

II. Choose the right answer.

11. There are certain patterns of chemical and biological processes occurring with the drug in the body. Reduced absorption of tetracycline when it is co-administered with antacids is an example of:

- A. Pharmaceutical incompatibility
- B. Functional antagonism
- C. Synergism
- D. Pharmacodynamic incompatibility
- E. Pharmacokinetic incompatibility

12. In order to facilitate usage and achievement of necessary therapeutic effect, the drug or medicinal plant material is given a certain dosage form. Indicate the dosage form in the form of a free-disperse system:

- A. Emulsion
- B. Gel
- C. Membrane
- D. Jelly
- E. Diaphragm

13. In snake venom there is a substance that causes erythrocyte hemolysis when it is introduced into a human organism. Blood test revealed a large amount of lysolecithin (lysophosphatidylcholine). What enzyme leads to accumulating lysolecithin in blood?

- A. Phospholipase A1
- B. Neuraminidase
- C. Phospholipase C
- D. Phospholipase D
- E. Phospholipase A2

14. During assessment of air purity in an aseptic unit of a pharmacy, sedimentation analysis had been applied. Test resulted in growth of the small colonies with areas of hemolysis. What medium was used for inoculation?

- A. Ploskirev's agar
- B. Blood agar
- C. Egg-yolk salt agar
- D. Levine's formulation (Eosin Methylene Blue agar)
- E. Endo agar

15. A patient with signs of mercury poisoning has been delivered into an admission room. What antidote should be prescribed in this case?

- A. Atropine sulfate
- B. Unithiol
- C. Proserin
- D. Calcium chloride
- E. Naloxone

16. A local general practitioner recommends taking interferon for influenza prevention. What is the mechanism of action of this drug?

- A. Blocks virus protein synthesis
- B. Blocks virus stripping
- C. Inhibits virion exit from cells
- D. Disrupts the process of virus assembly
- E. Prevents adsorption of virus in cell receptors

17. A 50-year-old patient in a poor condition was presented to the hospital. Objectively, the skin and visible mucous membranes are cyanotic, arterial blood saturation — 88%, NiBP — 90/60 mm Hg, pulse is 117 per minute, respiratory rate is 22 per minute. From the history it is known that the patient suffers from chronic heart failure. Which of the following types of hypoxia is most likely to develop in this case?

- A. Hemic
- B. Circulatory
- C. Tissue
- D. Hypoxic
- E. Anemic

18. The third analytical group of cations (acid-base classification) includes Ca^{2+} , Sr^{2+} , Ba^{2+} . What acid can function as a precipitator agent (group reagent) for these cations?

- A. HNO_3
- B. $HClO_4$
- C. HCl
- D. CH_3COOH
- E. H_2SO_4

19. The patient, who suffers from rheumatoid arthritis and concomitant duodenal ulcer should be prescribed a non-steroidal anti-inflammatory drug. What drug is most suitable in this case?

- A. Metamizole
- B. Acetylsalicylic acid
- C. Celecoxib
- D. Diclofenac sodium
- E. Paracetamol

20. Hyperlipemia can be observed in

2-3 hours after eating fatty food. 9 hours later lipid content normalizes again. How can this condition be characterized?

- A. Hyperplastic obesity
- B. Retention hyperlipemia
- C. Hypertrophic obesity
- D. Transport hyperlipemia
- E. Alimentary hyperlipemia

21. Surfactants are compounds that lower the surface tension (or interfacial tension) between two liquids, between a gas and a liquid, or between a liquid and a solid. Which of the following substances exhibits the properties of a surfactant at the air-water interface?

- A. HCl
- B. —
- C. NaOH
- D. Valeric acid
- E. Urea

22. You are studying the silvery downy plant of *Asteraceae* family, which is rich with essential oils and bitters. Harvested are apical sprouts with panicle of small round flower heads. This plant is:

- A. *Arctium lappa*
- B. *Chamomilla recutita*
- C. *Calendula officinalis*
- D. *Bidens tripartita*
- E. *Artemisia absinthium*

23. In medical practice barbiturates are used as sleeping pills. These substances act similar to rothenone and are inhibitors of tissue respiration. The mechanism of their action takes place on the enzymatic level. Which of the following enzymes do these substances inhibit?

- A. NADH-coenzyme Q reductase
- B. Adenosine triphosphate synthetase
- C. Cytochrome oxidase
- D. Succinate dehydrogenase
- E. Cytochrome C reductase

24. A study of the microbiological purity of tablet formulations is conducted on the production site. After cultivating samples on mannitol salt agar, golden-yellow colonies grow up. Microscopic examination of colonies establishes the presence of gram-positive bacteria of spherical shape, located in clusters;

microorganisms has the ability to coagulate the plasma. The pure culture of which of the following bacteria is discovered?

- A. *Pseudomonas aeruginosa*
- B. *Staphylococcus saprophyticus*
- C. *Staphylococcus aureus*
- D. *Enterobacteriaceae*
- E. *Staphylococcus epidermidis*

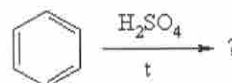
25. Preparations of colloid silver – Protargol (silver proteinate) and Collargol (colloid silver) – contain proteine compounds besides their active substance. What is the function of proteins in these preparations?

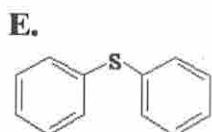
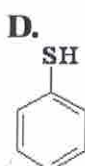
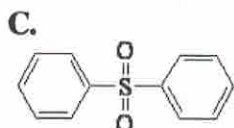
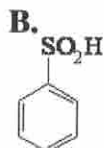
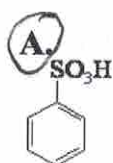
- A. Increased bactericidal action of silver
- B. Protection of colloid solution against coagulation
- C. Improved preparation technology
- D. Decreased side effects
- E. Increased storage time

26. On X-ray examination of the 59-year-old patient, in the lower lobe of the right lung there was detected a distinct shadow, differential for tumor. It was pre-determined that the tumor is benign. Which of the following features characterizes the tumor as benign?

- A. Metastasis
- B. Expansive growth
- C. Infiltrating growth
- D. Invasion in surrounding tissues
- E. Cancer cachexia

27. Sulfurization of benzene, as well as other aromatic hydrocarbons, is one of the most important reactions in organic chemistry, since its products are widely used in industry. Which of the following are the possible products of benzene sulfation reaction?





28. A patient demonstrates symmetrical dermatitis on the palms. A doctor made a diagnosis of pellagra. What vitamin deficiency can result in such symptoms?

- A. Nicotinic acid
- B. Cobalamin
- C. Cholecalciferol
- D. Folic acid
- E. Ascorbic acid

29. Corolla of a zygomorphic hermaphroditic flower consists of 5 petals: the largest one is called the banner, the two lateral petals are called the wings, and the two fused petals are forming the keel. Such corolla is characteristic of medicinal plants of Leguminosae family. Name the type of corolla:

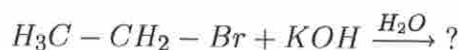
- A. Papilionaceous
- B. Labiate
- C. Funnelform
- D. Tubular
- E. Saucer-shaped

30. Etiological factors of infectious diseases can be infectious agents with diverse ultrastructure. Which of the

following groups does not have cellular structure, protein synthesis, enzymatic and energy systems?

- A. Viruses
- B. Bacteria
- C. Protozoa
- D. Fungi
- E. Rickettsia

31. The end-product of heating bromoethane with aqueous solution of potassium hydroxide is:



- A. Ethanoic acid
- B. Ethanol
- C. Ethane
- D. Ethene
- E. Diethyl ether

32. Specify the reagent necessary for the following transformation:



- A. $C_6H_5NIINH_2$
- B. NH_3
- C. CH_3NH_2 ✓
- D. NH_2NH_2
- E. NH_2OH

33. During examination it appeared that the patient's sclera and oral mucosa are icteric. What biochemical blood value can be expected to be increased?

- A. Bilirubin
- B. Cholesterol
- C. Amylase
- D. Albumin
- E. Glucose

34. A doctor has prescribed a nonsteroidal anti-inflammatory drug to relieve inflammation and pain syndrome. Name this drug:

- A. Loratadine
- B. Diclofenac sodium ✓
- C. Fentanyl
- D. Paracetamol
- E. Glibenclamide

35. Name the ability of high-molecular compounds to prevent precipitation of lyophobic sols and deposition of

cholesterol plaques on the vessel walls:

- A. Colloid protection
- B. Coagulation
- C. Coacervation
- D. Sedimentation
- E. Thixotropy

36. Streptomycin like other aminoglycosides, by binding to the 30S subunit of ribosomes, prevents the attachment of formylmethionyl-tRNA. What process is being disrupted as a result of this effect?

- A. Translation initiation
- B. Replication initiation
- C. Transcription initiation
- D. Translation termination
- E. Transcription termination

37. During photosynthesis within plant cell chloroplasts there is short-term retained starch being produced, which rapidly hydrolyzes into glucose. This starch is called:

- A. Transitory
- B. Secondary
- C. Reserve
- D. Resistant
- E. Primary

38. The researcher while conducting the qualitative analysis that involves sulfates precipitation of the third analytical group cations (Ca^{2+} , Sr^{2+} , Ba^{2+}) has to reduce solubility of sulfates. What substance should he use for this purpose?

- A. Ethyl alcohol
- B. Benzene
- C. Amyl alcohol
- D. Distilled water
- E. Chloroform

39. Thiocyanatometric titration method requires secondary standard solution of potassium thiocyanate that is standardized with standard solution of:

- A. Sulfuric acid
- B. Iron (II) sulfate
- C. Silver nitrate
- D. Copper (II) nitrate
- E. Hydrochloric acid

40. The student is studying a plant organ with radial symmetry, unlimited growth and positive geotropism. It provides

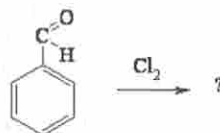
nourishment, vegetative reproduction and plant fastening in the soil. Which of the following is described?

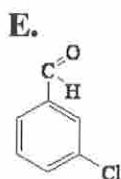
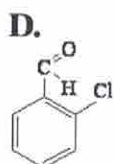
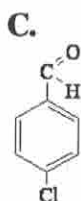
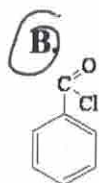
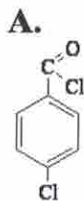
- A. Stem
- B. Leaf
- C. Root
- D. Rhizome
- E. Seed

41. Caffeine is one of the alkaloids contained in tea and coffee. Caffeine is contraindicated in case of:

- A. Depression of nervous activity
- B. Migraine
- C. Essential hypertension
- D. Hypotension
- E. Addiction

42. Reaction of benzaldehyde with chlorine produces:





43. Synthesis of a medicinal substance occurs in an isolated system. What is a direction criterion of spontaneous processes?

- A. Gibbs energy
- B. Intrinsic energy
- C. Entropy change
- D. Enthalpy**
- E. Helmholtz energy

44. Different structures of the bacterial cell perform different special functions. This component provides the adaptive capabilities of the bacterium and its protection against the adverse conditions of the environment. What component is it?

- A. Capsule
- B. Inclusions
- C. Flagella
- D. Spores
- E. Cilia

45. Total content of chloride, bromide, and iodide ions in the investigated solution can be quantitatively determined with the following titrant:

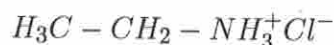
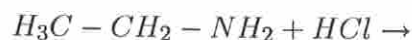
- A. Potassium dichromate solution
- B. Silver nitrate solution
- C. Sodium thiosulfate solution
- D. Potassium permanganate solution**
- E. Sodium nitrite solution

46. The student has a task to identify the primary amino group. Which of the following reactions he needs to use for this purpose?

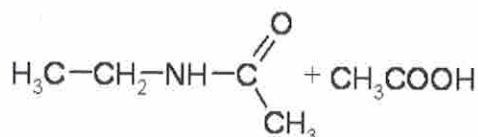
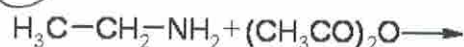
A.



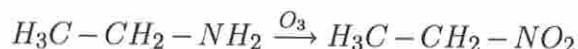
B.



C.



D.



E.



47. The patient is presented to the hospital with the phenomena of growing respiratory failure. He has clinical signs of bilateral subtotal pneumonia. The clinical diagnosis is confirmed by X-ray examination. What type of respiratory failure does this patient most likely

have?

- A. Thoracic diaphragm ~
- B. Restrictive
- C. Central
- D. Peripheral
- E. Obstructive

48. The biological study of spores and pollen revealed tetrahedral spores with a semi-circular base and reticular surface in the pollen. These spores belong to:

- A. *Lycopodiophyta*
- B. *Pinophyta*
- C. *Equisetophyta*
- D. *Bryophyta*
- E. *Polypodiophyta*

49. A 55-year-old man came to a doctor with complaints of acute pain in his big toes. Meat and wine remain permanently in his diet. The doctor suspects gout. What substance must

be measured in the patient's blood to confirm this diagnosis?

- A. Lactate
- B. Urea
- C. Ketone bodies
- D. Bilirubin
- E. Uric acid

50. In order to carry out the silver cations identification, HCl was added to the solution. Later, the formed solution was followed by adding the solution of ammonia. Specify which of the below-mentioned compounds are formed in such case?

- A. $[Ag_2(NH_3)_3]Cl$
- B. $[Ag(NH_3)_3]Cl$
- C. $AgCl$
- D. $[Ag(NH_3)_2]Cl$
- E. $AgOH$