



THE PROGRAM OF THE ENTRANCE EXAM

For the group of the educational program: Pharmacy based on higher medical education

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1. PURPOSE AND SCOPE OF APPLICATION

1.1 The program is intended for applicants in the field of "Healthcare" of the group of the educational program B085 Pharmacy on the basis of higher medical education

2. REGULATORY REFERENCES

- This program uses references to the following documents: The order of the Minister of Education and Science of the Republic of Kazakhstan "On approval of Standard rules for admission to educational organizations implementing educational programs of higher and postgraduate education" dated October 31, 2018 No. 600

3. MAIN PART

3.1 Purpose entrance exam

The entrance exams for the accelerated form of education are a procedure for selecting students for admission to the accelerated program of study at an educational institution. These exams are conducted to determine the knowledge, skills and abilities of applicants, as well as their preparation for an intensive and concise curriculum.

The questions of the entrance exams are designed taking into account the disciplines passed and the applicant's previous education level.

3.2 Contact information:

Astana, Beibtshilik street.49, Astana Medical University, School of Pharmacy. Tel.: 8(7172)539432, e-mail: sadvakasova.a@amu.kz.

3.3 Location of the entrance exam

Astana, Beibtshilik street.49, Astana Medical University

Admission to the audience for the entrance exam is carried out upon presentation of an identity document. At the same time, the entrance exam is conducted in classrooms (rooms) equipped with video and (or) audio recording.

3.4 The form of the entrance exam

50 test tasks with one correct answer. 60 minutes has given to answer.

3.5 The schedule of submission of documents and the timing of the entrance exam

The list of test tasks was approved at the meeting of the Academic Council of the Astana Medical University Protocol No. 5 dated May 29, 2023.

3.5 Schedule of submission of documents and terms of the entrance exam

Table 1.



Deadlines for receiving documents	Exam dates	Exam time	Acceptance of applications for appeal	Place of the exam
01.07.2023 – 10.07.2023	7.08.2023-9.08.2023	14.00-14.50	Until 13.00 h. the next day after the announcement of the results	49A Beibitshilik Street
25.07.2023 – 6.08.2023				

List of documents:

- 1) an application addressed to the Rector of the University in the prescribed form;
- 2) document of education (original);
- 3) identity document (required for identification);
- 4) 6 photo cards measuring 3 x 4 centimeters;
- 5) a medical certificate in the form 075/y in electronic format, approved by the order of the Acting Minister of Health of the Republic of Kazakhstan dated October 30, 2020 No. KR DSM-175/2020 "On approval of forms of accounting documentation in the field of healthcare" (registered in the Register of State Registration of Regulatory legal Acts under No. 21579)
- 6) Persons who have documents on technical and vocational, post-secondary education, who have confirmed their qualifications and have at least one year of work experience in the specialty, additionally submit one of the documents provided for in Article 35 of the Labor Code of the Republic of Kazakhstan.

3.6 Examination material

I. Questions about the basics of pharmacy:

1. Define the concept, term:
 - «Pharmacy»;
 - «Drug»;
 - «Medicinal product»;
 - «Pharmacological agent»;
 - «Biologically active substances»;
 - «Falsified medicinal product»;
 - «Reproduced medicinal product (generic)»;
 - «Parapharmaceuticals»;
 - «Medicinal form»;
 - «State Register of Medicines»;
 - «Basic (vital) medicines» and other
2. The main sections of pharmacy and their tasks
3. Pharmaceutical institutions.
4. Basic principles of state policy in the field of drug provision.
5. Legislative and regulatory documents regulating the legal basis of drug policy in the Republic of Kazakhstan.

II. Questions about pharmacology:

1. Recipe, its structure and content. Forms of prescription forms.



Forms of prescription prescriptions (official and main) and their characteristic

2. The concept of solid dosage forms and their varieties. Dosage methods. Tablets and powders. Definition. Rules for prescribing pills and powders in prescriptions.

3. The concept of soft dosage forms and their varieties. Dosage methods. Ointments and suppositories. Definition. Basics of ointments and suppositories. Requirements for the basics of ointments and suppositories. Rules for prescribing prescriptions for official and main ointments, candles.

4. Liquid dosage forms: classification. Solutions: definition, classification. Types of solvents. Methods of expressing the concentration of solutions. Rules for prescribing solutions for external and internal use. Forms of prescriptions of solutions: expanded, abbreviated.

5. Liquid dosage forms: definition, classification. Infusions, decoctions and tinctures, definition. Principles of cooking technology. Rules for prescribing recipes.

6. General pharmacology. Definition. The main sections of pharmacology. Pharmacokinetics of drugs, definition. Ways of administration of medicines. The main mechanisms of suction. Factors affecting the absorption of substances. The concept of bioavailability.

7. Distribution of medicinal substances in the body. Factors affecting the distribution. Binding of drugs to plasma proteins and tissues. Accumulation of medicinal substances (deposition).

8. Biotransformation (metabolism). Metabolic transformation, types of reactions, their characteristics. Inducers and inhibitors of microsomal oxidation, their pharmacological significance

9. Presystemic metabolism, its types, pharmacological significance. The concept of prodrugs. Excretion of drugs and their metabolites. Excretion pathways. Elimination, the period of semi-elimination.

10. General pharmacology. Definition. The main sections of pharmacology. Pharmacodynamics of drugs, definition. The mechanism of action of medicines. The concept of specific receptors, agonists and antagonists. Виды действия лекарственных веществ. Фармакологические эффекты (основные, побочные, токсические). Доза. Определение. Виды доз. Широта терапевтического действия препарата.

11. Changes in the effect of medicines when they are re-administered. Drug dependence, addiction (tolerance), sensitization, cumulation.

12. Local anesthetics: definition, classification. Requirements for local anesthetics. Mechanism of action. Application. Side and toxic effects of local anesthetics, relief measures.

13. Cholinergic agents. Classification. Anticholinesterase agents. Mechanism of action. Pharmacological properties. Application. Side effects. Acute poisoning. Symptoms of poisoning. Measures of assistance.

14. Cholinergic agents. Classification. M- cholinomimetic and N-



cholinomimetic agents. The main pharmacological effects. Application. Side effects.

15. Cholinergic agents. Classification. M- holinoblocking agents. Mechanism of action. The main pharmacological effects. Action on the central nervous system. Indications for use. Side effects.

16. Adrenergic agents. Classification. Substances that stimulate α - and β adrenoreceptors. Mechanism of action. Pharmacological effects of epinephrine. Indications for use. Side effects.

17. Sympathomimetics. Medication. Mechanism of action. The main pharmacological effects. Differences from epinephrine. Indications for use. Side effects.

18. Adrenergic agents. Classification. Drugs that stimulate mainly α -adrenoreceptors. The main pharmacological effects. Indications for use. Side effects.

19. Adrenergic agents. Classification. α -adrenomimetics. The main pharmacological effects. Indications for use. Side effects.

20. Adrenergic agents. Classification. α -adrenoblockers. The main pharmacological effects. Indications for use. Side effects.

21. Adrenergic agents. Classification. β -adrenoblockers. The main pharmacological effects. Indications for use. Side effects.

22. Sleeping pills. Classification. Mechanism of action, pharmacological effects. Indications and side effects. Acute and chronic poisoning with sleeping pills. Measures of assistance.

23. Antiepileptic Острое и хроническое отравление наркотическими анальгетиками. Антагонисты наркотических анальгетиков, их принцип действия. Понятие о нейролептанальгезии.

24. Steroid anti-inflammatory drugs (SPVS). Possible mechanisms of anti-inflammatory action. Pharmacological effects of SPVS. Indications for use. The concept of pulse therapy. Side effects of SPVS.

25. Antibiotics. Classification of antibiotics. Principles of rational antibiotic therapy. Beta-lactam antibiotics. Mechanism of action. Side and toxic effects. Contraindications to use.

26. Antibiotics. Classification of antibiotics. Principles of rational antibiotic therapy. Aminoglycosides and macrolides. Mechanisms of action. Application. Side and toxic effects. Contraindications to use.

27. Antibiotics. Classification of antibiotics. Principles of rational antibiotic therapy. Tetracyclines and the chloramphenicol group. Mechanism of action. Features of the spectrum of action. Application. Side and toxic effects. Contraindications.

28. Antibiotics. Classification of antibiotics. Principles of rational



antibiotic therapy. Lincosamides and polymyxins. Mechanism of action. Side effects. Application.

29. Synthetic antimicrobial agents of different chemical structure. Classification. Fluoroquinolones and quinolones. Mechanism of action. Application. Side and toxic effects. Contraindications.

30. Sulfonamides. Classification. Combination of sulfonamides with trimethoprim. Mechanism of action. Indications. Side and toxic effects. Contraindications.

31. Derivatives of nitroimidazoles and nitrofurans. Classification. Mechanisms of action. The spectrum of action. Indications. Side and toxic effects. Contraindications.

32. Anti-influenza drugs. Medication. Mechanisms of action. Application. Side effects. The importance of antiseptics and disinfectants in the fight against viruses.

33. Natural and recombinant interferons. Medication. Biological significance, properties. Indications, contraindications, side effects.

34. Interferon inducers (of natural and synthetic origin). Medication. Biological significance, properties. Противогрибковые средства. Классификация. Противогрибковые антибиотики: механизмы действия, показания к применению. Побочные и токсические эффекты

35. 35. Antitussive remedies. Classification. Application. Side effects. The possibility of developing drug addiction and addiction.

36. Expectorants. Classification. Mechanism of action. Ways of introduction. Indications and contraindications. Side effects.

37. Bronchodilators. Classification of drugs used for the treatment of bronchospasm and bronchial asthma. Antispasmodics of myotropic action (methylxanthines). The mechanism of broncholytic action. Indications for use. Side effects.

38. Antiallergic agents. Classification. Histamine H1 receptor antagonists and antileukotriene agents, mechanism of action, pharmacological effects. Application. Side effects.

39. Anti-allergic agents. Classification. Means that prevent the degranulation of mast cells. Mechanism of action. Comparative characteristics of drugs. Application. Side effects.

40. Anti-allergic and anti-inflammatory drugs used in the treatment of



bronchial asthma: selective immunosuppressant, PDE 4 inhibitor. Mechanisms of action. Application. Side effects.

41. Remedies used for pulmonary edema. Types of pulmonary edema. Anti-foaming properties of ethyl alcohol. Oxygen therapy. Dehydrating effect of mannitol. Principles of their action in pulmonary edema. Side effects.

42. Antihypertensive agents. Principles of lowering blood pressure. Classification. Neurotropic antihypertensive agents of central and peripheral action. The mechanism of the hypotensive effect. Indications. Side effects. Contraindications.

43. Antihypertensive agents. Principles of lowering blood pressure. Classification. Calcium channel blockers: dihydropyridines. Mechanism of action. Side effects.

44. Antihypertensive agents. Principles of lowering blood pressure. Classification. Agents that affect the renin-angiotensin system. Mechanism of action. Application. Complications, contraindications.

45. Antianginal drugs. The basic principles of eliminating oxygen deficiency in coronary heart

46. Antianginal drugs. The basic principles of eliminating oxygen deficiency in coronary heart disease. Classification. Calcium channel blockers: phenylalkylamines, benzothiazepines. The mechanism of their action in angina pectoris. Indications for use. Side effects.

47. Anti-atherosclerotic agents. Classification. Mechanisms of influence on lipid metabolism. Side effects.

48. Cardiotonic means. Classification. Mechanism of action. Pharmacological effects of cardiac glycosides. Indications, contraindications, side effects. Factors influencing the development of cardiac glycoside intoxication: clinical manifestations, prevention, treatment.

49. Diuretics. Classification. Loop, thiazide and thiazide-like diuretics. Mechanism of action. Indications for use. Side and toxic effects.

50. Diuretics. Classification. Potassium-sparing diuretics and carbonic anhydrase inhibitors, mechanisms of action, indications, contraindications, side effects.

51. Diuretics. Classification. Osmotic diuretics, mechanism of action, indications, contraindications, side effects.

52. Drugs that reduce the secretion of the glands of the stomach (antisecretory agents). Classification. Mechanism of action. Indications. Contraindications. Side and toxic effects.

53. Antacids. Classification. Mechanism of action. Indications. Contraindications. Side effects.



54. Gastroprotectors. Classification. Principles of action. Indications and contraindications. Side effects.
55. Laxatives. Classification. Mechanisms of action. Application. Contraindications. Side effects.
56. Prokinetics. Classification. Mechanisms of prokinetic action. Application. Contraindications. Side effects.
57. Antidiarrheal drugs. Classification. Mechanisms of action. Indications and contraindications. Side effects.
58. Hepatoprotectors. Classification. The principle of operation. Indications for use. Side effects.
59. Choleric and cholelitholytic agents. Classification. Mechanisms of action. Indications and contraindications. Side effects.
60. Drugs that inhibit the secretory function of the pancreas. Classification. Mechanisms of action. Indications and contraindications. Side effects
61. Drugs used for the treatment of hypo- and hyperchromic anemia. Classification. Mechanisms of action. Side effects.
62. The role of ascorbic acid and trace elements in the processes of iron assimilation. Poisoning with iron preparations, symptoms, measures of assistance.
63. Substances that promote blood clotting (hemostatics). Classification. Coagulants. Mechanism of action. Indications for use, side effects.
64. Substances that promote blood clotting (hemostatics). Classification. Fibrinolysis inhibitors. Mechanisms of action of drugs. Indications for use. Side effects.
65. Substances that reduce blood clotting. Classification. Direct and indirect anticoagulants Mechanism of action. Indications for use. Side effects. Contraindications.
66. Substances that reduce blood clotting. Fibrinolytic agents of direct and indirect action. Mechanisms of antithrombotic effect. Indications for use, side effects.
67. Drugs used in the syndromes of hypo- and hyperthyroidism. Classification. Application. Side effects
68. Insulin preparations. Classification. Indications for insulin therapy. Complications of insulin therapy. Emergency therapy for hypo- and hyperglycemia.
69. Synthetic hypoglycemic agents. Classification. Mechanisms of action. Pharmacological effects. Indications for use, side effects.

3.7. Results of the entrance exam

Positive rating for passing: at least 50 points (at least 25 correct answers), duration: 50 minutes.