Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Head of the Department of
Pharmacology and Clinical Pharmacology
_____ / Eliseeva E.V./
"8th" of April 2025

COLLECTION OF ASSESSMENT TOOLS
Б1.О.15 Pharmacology
of the basic educational program of Higher Education

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Department	of Pharmacology and Clinical Pharmacology

Vladivostok, 2025

1. INTRODUCTION

1.1. Collection of Assessment Tools is a document that regulates the format, content, and types of assessment tools for continuous assessment, interim examination and final (state final) examination, and graded criteria for each type of assessment tools.

1.2. Assessment tools allows to evaluate the development of universal, general professional, and professional competencies (UCs, GPCs and PCs respectively) outlined in Federal State Educational Standard of Higher Education and defined in the basic educational program of higher education for the specialty 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system).

(BEP HE for the 31.05.01 General Medicine for international students (in English) specialty, section 3 Learning Outcomes Requirements of the Basic Educational Program of Higher Education)

2. DOCUMENT BODY

2.1. Types of Assessment, Formats of Assessment Tools

No.	Types of assessment	Assessment Tools Format
1	**Continuous assessment**	**Tests**
		Mini-Case Studies
		Checklists
2	**Interim assessment**	**Checklists**
		Interview Questions

3. The contents of assessment tools for continuous and interim examination are prepared by the teacher of the course

Tests for continuous assessment

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		**ANSWER LEVEL 1 TEST QUESTIONS (ONE CORRECT ANSWER)**
		1. The mechanism of malignant hyperthermia associated with using general anesthetics consists in 1) synthesis of prostaglandins by action of cyclooxygenase 2) vasodilation mediated by release of histamine +3) calcium release due to rhabdomyolysis 4) stimulation of hypothalamus by endogenous pyrogen

2. The main process in nephron associated with diuretic effect of most diuretics is
1) increased filtration
2) increased secretion
+3) decreased reabsorption

3. Dissociative anesthesia can be defined as
+1) a mental state in which the individual appears to be dissociated from the environment without complete loss of consciousness; this type of anesthesia is characterized by analgesia, reduced sensory perception, immobility, and amnesia
2) a physical state in which the individual stops receiving pain sensation due to blockade of nerve impulse conduction but stays conscious
3) a type of dissociative disorder characterized by ≥2 personality states (also called alters, self-states, or identities) that alternate; this disorder includes inability to recall everyday events, important personal information, and/or traumatic or stressful events, all of which would not typically be caused by ordinary forgetting

4. The side effect not characteristic for nitrates is
1) reflex tachycardia
+2) lung fibrosis
3) headache
4) withdrawal syndrome

5. The mechanism of development of "aspirin" asthma and triad (rhinitis, polyposis and sinusitis) is associated with
1) reduced synthesis of prostaglandin E-2 in the bronchi
+2) activation of the lipooxygenase pathway of arachidonic acid metabolism
3) hapten (antigenic) properties of acetylsalicylic acid molecules at high doses

6. The content of potassium ions in cardiomyocytes _____ due to administration of cardiac glycosides
1) increases
+2) decreases
3) does not change

7. Select blocker of purine receptors on platelet, which inhibit action of ADP, include
1. heparin
+2. clopidogrel
3. aspirin
4. tirofiban

8. M-choline blocker with significant inhibitory action on CNS include
1) atropine
+2) scopolamine

		3) ipratropium 4) pirenzepine 9. In patients with benign prostatic hyperplasia, _____ is used to increase urine flow rate 1) reserpine +2) tamsulosin 3) timolol 4) finasteride 10. Contraindications for use of glucocorticoids include +1) acute infectious (bacterial, viral, fungal) processes of the skin or mucous membranes 2) autoimmune disorders (including systemic lupus erythematosus) 3) allergic rhinitis 4) bronchial asthma
I		**ANSWER LEVEL 2 TEST QUESTIONS (MULTIPLE CORRECT ANSWERS)**
		1. Side effects of non-selective β-blockers include +1) heart failure +2) increase in bronchial tone +3) atrioventricular blockade +4) spasm of peripheral artery 5) impaired accommodation 6) hyperglycemia 2. Side effects of ketamine include 1) bronchospasm +2) increased blood pressure +3) tachycardia +4) hypersalivation 5) increase in intraocular pressure 3. Fetal alcohol syndrome is characterized by +1) growth retardation 2) spina bifida +3) mental disability 4) phocomelia 4. Complications of using COX-1 inhibitors include +1) gastrointestinal ulceration +2) inhibition of kidney function 3) hypothermia 4) hypotension 5. Effects of neuroleptics include +1) antipsychotic effect 2) analeptic effect +3) anti-emetic effect 4) cardiotonic action +5) muscle-relaxing effect 6. The main effects of glycosides on the heart are

		+1) increased force of contraction +2) decreased heart rate 3) increased heart rate +4) slower atrioventricular conductivity 5) better atrioventricular conductivity +6) increased cardiac automatism (in high doses) 7. Medications that can be used as vasoconstrictor include +1) dopamine 2) pentoxifylline 3) salbutamol +4) xylometazoline 8. Pharmacological effects of anticholinesterase medications include +1) accommodation spasm 2) pupil dilation +3) reduction of intraocular pressure +4) facilitation of neuromuscular transmission 5) increased tone and contractile activity of the intestine 9. Which histamine effects are reduced by H1-receptors blockers? +1) capillary permeability 2) increased gastric secretion +3) increased bronchial and intestinal tone +4) reduced smooth muscle tone of the arteries 10. Indications for the use of adrenaline include 1) hypertension +2) vascular collapse +3) anaphylactic shock +4) bronchial asthma (to stop attacks) 5) bronchial asthma (to prevent attacks) +6) cardiac arrest +7) hypoglycemic coma +8) for local constriction of blood vessels in combination with local anesthetics +9) atrioventricular block 11. Astringents are used +1) topically for stomatitis, bleeding of the gums, pharyngitis +2) topically for treating affected areas of skin +3) for gastric lavage when poisoned with heavy metal salts and alkaloid salts 4) for flatulence +5) for oral administration with inflammatory processes of the digestive tract (enteritis, colitis) 12. Contraindications for use of alteplase include +1) hemorrhagic stroke 2) acute myocardial infarction +3) stomach ulceration 4) pulmonary embolism

13. Side effects of furosemide include
+1) hypokalemia
+2) hypomagnesemi
+3) hyperuricemia
+4) tinnitus and hearing loss
5) hypoglycemia
6) hyperkalemia

14. Side effects of loperamide include
+1) constipation
2) interstitial nephritis
3) dry mouth
4) hyperthermia
+5) abdominal cramps

I **ANSWER LEVEL 3 TEST QUESTIONS (MATCHING QUESTIONS)**

1. Match the receptor and its endogenous stimulator

1. H1 receptor	1. Serotonin
2. 5 HT receptor	2. Epinephrine
3. α1 receptor	3. Acetylcholine
4. M3 receptor	4. Histamine

Correct answer: 1 – 4, 2 – 1, 3 – 2, 4 – 3

2. Match the receptor and its stimulator

1. β1 receptor	1. Pramipexole
2. D2 receptor	2. Pilocarpine
3. α1 receptor	3. Dobutamine
4. M3 receptor	4. Oxymetazoline

Correct answer: 1 – 3, 2 – 1, 3 – 4, 4 - 2

3. Match the pharmacological effects and medicines

1. Loratadine	1. Bronchodilation
2. Bisoprolol	2. Bradicardia
3. Ipratropium bromide	3. Antiemetic action
4. Ondansetrone	4. Antipruritic action

Correct answer: 1 – 4, 2 – 2, 3 – 1, 4 - 3

4. Match the medication and its mechanism of action

1. Loratadine	1. Blockade of β1 receptors
2. Bisoprolol	2. Blockade of M3 receptors
3. Ipratropium bromide	3. Blockade of 5-HT3-receptors
4. Ondansetrone	4. Blockade of H1 receptors

Correct answer: 1 – 4, 2 – 1, 3 – 2, 4 - 3

5. Match the medication and parameter of esteemed effectiveness of pharmacotherapy

1. Enalapril	1. Analgesic action at neuralgia
2. Diclofenac	2. Restored cardiac rhythm
3. Insulin	3. Decrease BP at hypertension
4. Amiodarone	4. Decrease blood glucose at DM

		Correct answer: 1 – 3, 2 – 1, 3 – 4, 4 - 2 6. Match the medication and its most likely side effect 1. Diphenhydramine — 1. Ototoxicity 2. Diclofenac — 2. Drowsiness 3. Amikacin — 3. Lung fibrosis 4. Amiodarone — 4. Ulceration of GIT Correct answer: 1 – 2, 2 – 4, 3 – 1, 4 - 3

Assessment criteria

"Very good" - more than 80% correct answers of questions of every level
"Good" - 70-80% correct answers of questions of every level
"Satisfactory" - 60-70% correct answers of questions of every level
"Unsatisfactory" - less than 60% correct answers of questions of every level

Assessment criteria for learning outcomes

Standardized case studies and checklists for **Б1.О.15 Pharmacology** course

Case Study No. 1

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS Acetylsalicylic acid was prescribed for patient due to coronary artery disease. However, after some time, the patient had pain in the epigastric region and tar-like stool.
Q	1	Question: For what purpose was acetylsalicylic acid prescribed?
Q	2	Question: What is the cause of the complications?

Case Study No.1 Checklist

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety

I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS Acetylsalicylic acid was prescribed for patient due to coronary artery disease. However, after some time, the patient had pain in the epigastric region and tar-like stool.
Q	1	Question: For what purpose was acetylsalicylic acid prescribed?
A		Correct answer: Acetylsalicylic acid inhibits platelet aggregation by inactivating COX-platelets, an enzyme that produces the cyclic endoperoxide precursor of thromboxane A2. Acetylsalicylic acid reduces the risk of atherothrombosis in patients with coronary artery disease.
Q	2	Question: What is the cause of the complications?
A		Correct answer: The reason for this complication is the inhibition of the synthesis of prostaglandins E2 and I2 with the use of acetylsalicylic acid. Those prostaglandins have gastroprotective properties. Thus, with a lack of PGE2 and PG I2, there is a risk of gastrointestinal ulceration.
R2	Very good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
R1	Good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
	Satisfactory	given to a student who gives a full correct answer, demonstrates sufficient knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, knows and uses professional terminology, but whose answer was slightly inaccurate without being incorrect
R0	Fail	given to a student who provides no answer or only fragments of an answer, demonstrates the lack of knowledge, and cannot provide an answer even with external help

Case Study No. 2

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE

		DETAILED ANSWERS TO THE QUESTIONS The patient began bleeding during lung surgery, accompanied by a significant increase in fibrinolytic activity in the blood.
Q	1	Question: What medications should be administered to a patient to stop bleeding?
Q	2	Question: What are the mechanisms for their action?

Case Study No.2 Checklist

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS The patient began bleeding during lung surgery, accompanied by a significant increase in fibrinolytic activity in the blood.
Q	1	Question: What medications should be administered to a patient to stop bleeding?
A		Correct answer: Hemostatic agents are antifibrinolytic agents such as tranexamic acid.
Q	2	Question: What are the mechanisms for their action?
A		Correct answer: Tranexamic acid is a competitive (at high concentrations - non-competitive) inhibitor of the activation of profibrinolysin (plasminogen) and its conversion to fibrinolysin (plasmin).
R2	Very good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
R1	Good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
	Satisfactory	given to a student who gives a full correct answer, demonstrates sufficient knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, knows and uses professional terminology, but whose answer was slightly inaccurate without being incorrect
R0	Fail	given to a student who provides no answer or only fragments of an answer, demonstrates the lack of knowledge, and cannot

		provide an answer even with external help

Case Study No. 3

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS 62-year-old patient had once again experienced a heart attack and a feeling of lack of air. He himself took 4 tablets of propranolol, the condition did not improve. He came to the clinic. The doctor of the clinic diagnosed the atrial fibrillation paroxysm; heart rate was 104 beats per minute. Doctor administered intravenously 4 ml verapamil 0.25%. A few minutes later, clinical death occurred, the patient was resuscitated. ECG shows a complete blockade.
Q	1	Question: Explain mechanism of action of used medicines.
Q	2	Question: Explain a reason of complete AV blockade.

Case Study No.3 Checklist

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS 62-year-old patient had once again experienced a heart attack and a feeling of lack of air. He himself took 4 tablets of propranolol, the condition did not improve. He came to the clinic. The doctor of the clinic diagnosed the atrial fibrillation paroxysm; heart rate was 104 beats per minute. Doctor

		administered intravenously 4 ml verapamil 0.25%. A few minutes later, clinical death occurred, the patient was resuscitated. ECG shows a complete blockade.
Q	1	Question: Explain mechanism of action of used medicines.
A		Correct answer: Verapamil blocks calcium channels (acts on the inside of the cell membrane) and lowers the transmembrane calcium current. The interaction with the channel is determined by the degree of depolarization of the membrane: it more effectively blocks the open calcium channels of the depolarized membrane. Reduces contractility, sinus node rhythm driver frequency and AV node conduction speed, sinoatrial and AV conduction. Propranolol blocks beta1 and beta2-adrenergic receptors, has a membrane-stabilizing effect. Inhibits automatism of the sinoatrial node, suppresses the occurrence of ectopic foci in the atria, AV junction, ventricles (to a lesser extent). It reduces the excitation rate in the AV connection along the Kent beam, mainly in the anterograde direction. Reduces heart rate, reduces heart rate and myocardial oxygen demand.
Q	2	Question: Explain a reason of complete AV blockade.
A		Correct answer: The reason for the complete AV block is the synergistic effect of the drugs used - verapamil and propranolol. Both drugs inhibit AV conduction, and therefore the use of these drugs together is not rational.
R2	Very good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
R1	Good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
	Satisfactory	given to a student who gives a full correct answer, demonstrates sufficient knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, knows and uses professional terminology, but whose answer was slightly inaccurate without being incorrect
R0	Fail	given to a student who provides no answer or only fragments of an answer, demonstrates the lack of knowledge, and cannot provide an answer even with external help

Case Study No. 4

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports

C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS The patient with systemic lupus erythematosus was prescribed the medication in tablet form. The symptoms of the disease have become less pronounced. However, due to the fear of exacerbation of the disease, the patient continued treatment without the consent of the physician. After some time, the patient drew attention to the swelling of the face, a significant increase in body weight and the appearance of pain in the epigastric region. During the examination, a decrease in the level of lymphocytes and eosinophils was found, and erosion of the gastric mucosa was also found.
Q	1	Question: Which medicine did patient use? What is the cause of the complications?
Q	2	Question: What should the treatment tactics be in this case?

Case Study No.4 Checklist

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS The patient with systemic lupus erythematosus was prescribed the medication in tablet form. The symptoms of the disease have become less pronounced. However, due to the fear of exacerbation of the disease, the patient continued treatment without the consent of the physician. After some time, the patient drew attention to the swelling of the face, a significant increase in body weight and the appearance of pain in the epigastric region. During the examination, a decrease in the level of lymphocytes and eosinophils was found, and erosion of the gastric mucosa was also found.
Q	1	Question: Which medicine did patient use? What is the cause of the complications?
A		Correct answer:

		The patient received glucocorticosteroid (possibly methylprednisolone) for the treatment of systemic lupus erythematosus. This drug has the following pharmacological effect - glucocorticoid, immunosuppressive, antiallergic, anti-inflammatory, anti-shock. The mechanism of anti-inflammatory action is due to an increase in the production of lipocortins that inhibit phospholipase A2 and inhibit the liberation of arachidonic acid from membrane phospholipids, followed by inhibition of the synthesis of cyclic endoperexes, leukotrienes, PG, thromboxane, hydroxy acids. The immunosuppressive effect is due to a decrease in the number of circulating basophils, suppression of proliferation of lymphoid and connective tissue, a decrease in the number of T and B lymphocytes, mast cells. It also retains sodium and water, in connection with which swelling and an increase in body weight occur. The reason for the erosion of the gastric mucosa is a decrease in the inhibitory arachidonic acid from membrane phospholipids, followed by inhibition of prostaglandin synthesis, especially E2 (gastroprotective).
Q	2	Question: What should the treatment tactics be in this case?
A		Correct answer: First of all, it is necessary to discontinue glucocorticosteroids, as well as prescribe drugs for the treatment of erosions of the gastric mucosa, for example, proton pump inhibitors (omeprazole) or a synthetic analogue of PG E1 (misoprostol).
R2	Very good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
R1	Good	given to a student who gives a full correct answer, demonstrates deep, systemic knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, and knows and uses professional terminology correctly
	Satisfactory	given to a student who gives a full correct answer, demonstrates sufficient knowledge of the subject, shows mastery of skills necessary to achieve objectives during professional activity, knows and uses professional terminology, but whose answer was slightly inaccurate without being incorrect
R0	Fail	given to a student who provides no answer or only fragments of an answer, demonstrates the lack of knowledge, and cannot provide an answer even with external help

Practical Skills Assessment Checklist

Practical Skill Name "Writing a prescription for a medication"

C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
T	Translate the following into Latin and write a prescription, indicating the dose and route of administration according to the instruction for medical use. What type of blank/form must be selected for prescription of this medication? *Take: Morphine solution 1%-1 ml* *Give these doses by number 10.* *Designate*	

	Action	Performed	Not Performed
1.	Correctly select the prescription blank/form	1 point	-1 point
2.	Correctly write the prescription in the selected prescription blank/form	1 point	-1 point
3.	Make no mistakes in Latin and English terminology	1 point	-1 point
4.	Correctly write the dosage form of the medication	1 point	-1 point
5.	Correctly write the route of administration	1 point	-1 point
	Total	5 points	

Practical Skills Assessment Checklist

Practical Skill Name "Writing a prescription for a medication"

C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
T	Translate the following into Latin and write a prescription, indicating the dose and route of administration according to the instruction for medical use. What type of blank/form must be selected for prescription of this medication? *Take: Tablets of Bisoprolol in dose of 5 mg, number 30.* *Designate: Take by mouth once per day*	

	Action	Performed	Not Performed
1.	Correctly select the prescription blank/form	1 point	-1 point
2.	Correctly write the prescription in the selected prescription blank/form	1 point	-1 point
3.	Make no mistakes in Latin and English terminology	1 point	-1 point
4.	Correctly write the dosage form of the medication	1 point	-1 point
5.	Correctly write the route of administration	1 point	-1 point
	Total	5 points	

Assessment criteria:

"Pass" –75% or more of actions performed correctly

"Fail" – 74% and less

Interview questions for interim examination

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-3	Is capable of counteracting use of performance-enhancing drugs in sports

C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety
I		**ANSWER THE QUESTIONS** 1. The content of pharmacology, its objectives. Its position among other medical disciplines. Relationship with other biomedical disciplines, especially physiology and biochemistry. The importance of pharmacology for practical medicine. 2. Clinical studies of medications. Ethical aspects. Monitoring the effectiveness and safety of pharmacotherapy. 3. Clinical pharmacokinetics (absorption, distribution, deposition, biotransformation, excretion). Factors affecting pharmacokinetic processes. 4. Substance biotransformation phases. Describe the peculiarities of these processes in the children, pregnant women, and the elderly. Ways of eliminating medications or their metabolites from the body. Describe the peculiarities of these processes in the children, pregnant women, and the elderly. 5. Quantitative measures (values) used in pharmacokinetics (elimination half-life, maximum concentration (C max), T max, minimum effective concentration, duration of action, bioavailability, volume of distribution). 6. Types of pharmacotherapy. 7. Types of doses: single (highest single), daily (highest daily), course; therapeutic (TD), age-related; toxic (LD). Dependence of pharmacological effect on dose and concentration of drug substance. Therapeutic index. 8. Prescription. Rules for prescribing and dispensing medicines. 9. State Pharmacopoeia. 10. General principles of treatment of drug poisoning. 11. Hypnotics. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 12. General anaesthetics, features of general anaesthesia. Mechanism of general anaesthesia. Stages of anaesthesia. Requirements general anesthetics must meet (properties of an ideal anaesthetic). 13. Antipsychotics (neuroleptics). Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 14. Antidepressants. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 15. Anxiolytics. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 16. Antiparkinsonian medications. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 17. Peripherally acting muscle relaxants. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 18. Centrally acting muscle relaxants. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects.

		19. Acute opioids poisoning. Treatment. Prophylaxis. Specific antidotes. 20. Local/topical anesthetics. Requirements for local anesthetics. Classifications of local anesthetics. Mechanism of action. Factors affecting the effectiveness of local anesthetics. Selection various types of local anesthesia (surface, regional, infiltration, cerebrospinal). Use of procaine nerve block in medical practice. 21. Opioid analgesics. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 22. Characteristics of non-narcotic analgesics, their difference from opioid analgesics. Classification of non-narcotic (non-opioid) analgesics. Synthesis of inflammatory mediators from arachidonic acid. Certain arachidonic acid metabolites and their main effects (pathological and physiological). Mechanisms of action of non-narcotic analgesics. 23. Classification of NSAIDs. Pharmacological features. Clinical use of non-narcotic analgesics. Side effects (prophylaxis). 24. Derivatives of salicylic acid, propionic acid derivatives – comparative pharmacological features. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 25. Antiepileptic agents. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 26. Psychostimulant medications. Classification. Indications and usage. Contraindications. Drug interactions. Side effects. 27. Cognition enhancers (nootropic medications). Classification. Indications and usage. Contraindications. Drug interactions. Side effects. 28. Pharmacodynamic and pharmacokinetic features of Class I antiarrhythmic medications. Classification. Indications and usage. Contraindications. Drug interactions. Side effects. 29. Pharmacodynamic and pharmacokinetic features of Class IV antiarrhythmic medications. Indications and usage. Contraindications. Drug interactions. Side effects. 30. Antianginal medications (agents that reduce the need of the myocardium for oxygen). Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 31. Antianginal medications (agents that reduce myocardial oxygen demand and improve its blood supply). Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 32. Antianginal medications (agents that increase oxygen delivery to myocardium). Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 33. Centrally acting antihypertensive medications. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 34. Medications affecting renin-angiotensin system. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 35. Diuretics. Definition. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects.

		36. Pharmacotherapy of hypertensive emergencies. 37. Management of myocardial infarction. 38. Pulmonary edema. Treatment. 39. Hypertensive medications. Classification, pharmacological features, indications and contradictions. Side effects. Vasoconstrictor medications. 40. Anticoagulant medications of direct action (heparin and related drugs, direct thrombin inhibitors, inhibitors of active factor X). Pharmacodynamic and pharmacokinetic features. Clinical use. Contraindications. Drug interactions. Side effects. 41. Thrombolytic medications. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 42. Antiplatelet medications. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 43. Antithrombotic and thrombolytic reversal agents. Pharmacodynamic and pharmacokinetic features. Clinical use. Side effects. Contraindications. Drug interactions. 44. Antacids. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 45. Proton pump inhibitors. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 46. Medications that protect the gastric mucosa. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 47. Medications that affect gastrointestinal motility (increase, decrease). Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 48. Insulin preparations. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 49. Medications for treatment of diabetes (incretin mimetics, renal glucose reabsorption inhibitors). Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 50. Diabetic coma. Emergency medical aid. 51. Thyroid medications. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 52. Glucocorticoids (natural and synthetic). Classification. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Undesirable adverse reactions of glucocorticoids. Risk factors, prophylaxis and correction of undesirable adverse reactions. 53. Medications affecting calcium metabolism. Classification. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Indications and usage. Contraindications. Drug interactions. Side effects. 54. Medications for the treatment of gout. Medications for preventing gout attack. Medications for treating gout attacks. Pharmacodynamics, pharmacokinetics. Pharmacological actions. Contraindications. Side effects. 55. Antiseptics and disinfectants. Classification. Mechanism of action. Features. Spectrum of activity. Clinical use. 56. Penicillins. Chemistry, properties and mechanism of action.

		Classification. Features. Spectrum of activity. Clinical use. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Side effects. 57. Cephalosporins. Chemistry, properties and mechanism of action. Classification. Features. Spectrum of activity. Clinical use. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Side effects. 58. Medications for Herpesvirus infections. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Side effects. 59. Macrolides. Classification. Mechanism of action. Features. Spectrum of activity. Clinical use. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Side effects. 60. Antifungal medications. Classification. Mechanisms of action. Features. Spectrum of activity. Clinical use. Pharmacodynamic and pharmacokinetic features. Indications and contraindications. Side effects.

4. Assessment criteria for learning outcomes

"Very good" grade is given to a student who possesses knowledge of the subject in full scope outlined in the curriculum, has a sufficiently deep insight into the subject; is able to answer all questions clearly, exhaustively, and with no outside help; structures their answers logically, with emphasis on the most important information; is able to analyze, compare, classify, summarize, refine, and structure the course content, giving particular attention to cause-and-effect relationships.

"Good" is given to a student whose knowledge of the subject is almost in full scope outlined in the curriculum (gaps are only present in the knowledge of some especially complex aspects); is able to answer questions exhaustively with little to no outside help; does not always put emphasis on the most important information, but does not make significant mistakes.

"Satisfactory" is given to a student who possesses the bulk of knowledge on the subject; has difficulties answering questions with no outside help, uses imprecise wording; makes mistakes in substantial number of their answers.

"Unsatisfactory" is given to a student who does not have the mandatory minimum of knowledge on the subject, is not able to give an answer even with additional guiding questions.

Practical Skills Assessment Checklist

Practical Skill Name "Writing a prescription for a medication"

C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety		
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety		
T	Translate the following into Latin and write a prescription, indicating the dose and route of administration according to the instruction for medical use. What type of blank/form must be selected for prescription of this medication? Calculate doses of the cefixime for a 10-year-old child weighing 36 kg. The recommended dosage regimen is 8 mg/kg/day, once per day for 7 days. 1. How much of the cefixime should be administered daily? 2. How much of the cefixime should be administered over the course of the treatment?			
	Action		Performed	Not Performed
1.	Correctly select the prescription blank/form		1 point	-1 point
2.	Correctly write the prescription in the selected prescription blank/form		1 point	-1 point
3.	Make no mistakes in Latin and English terminology		1 point	-1 point
4.	Correctly write the dosage form of the medication		1 point	-1 point
5.	Correctly write the route of administration		1 point	-1 point

	Correctly write the dose of the medication taking into account the patient's body weight	1 point	-1 point
	Total	6 points	

Practical Skills Assessment Checklist

Practical Skill Name "Writing a prescription for a medication"

C	GPC-7	Is able to prescribe treatment and monitor its efficacy and safety	
F	A/03.7	Prescribing treatment and monitoring its efficiency and safety	
T	Translate the following into Latin and write a prescription, indicating the dose and route of administration according to the instruction for medical use. What type of blank/form must be selected for prescription of this medication? In case of paracetamol overdose, acetylcysteine is administered intravenously in dose 140 mg/kg. How much ml of a 10% solution of the drug should be administered to patient weighing 60 kg?		
	Action	Performed	Not Performed
1.	Correctly select the prescription blank/form	1 point	-1 point
2.	Correctly write the prescription in the selected prescription blank/form	1 point	-1 point
3.	Make no mistakes in Latin and English terminology	1 point	-1 point
4.	Correctly write the dosage form of the medication	1 point	-1 point
5.	Correctly write the route of administration	1 point	-1 point
	Correctly write the dose of the medication taking into account the patient's body weight	1 point	-1 point
	Total	6 points	

Assessment criteria:

"Pass" –75% or more of actions performed correctly

"Fail" – 74% and less