Appendix to the working program

Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation

BANK OF ASSESSMENT TOOLS FOR DISCIPLINE

NAME OF THE ACADEMIC DISCIPLINE: PHARMACOLOGY

SPECIALTY: 33.05.01 PHARMACY

QUALIFICATION: PHARMACIST

DEPARTMENT: GENERAL AND CLINICAL PHARMACOLOGY

MODE OF STUDY: FULL-TIME

Nizhniy Novgorod
2023

1. Bank of assessment tools for the current monitoring of academic performance, mid-term assessment of students in the discipline

This Bank of Assessment Tools (BAT) for the discipline "Pharmacology" is an integral appendix to the working program of the discipline "Pharmacology". All the details of the approval submitted in the WPD for this discipline apply to this BAT.

(Banks of assessment tools allow us to evaluate the achievement of the planned results stated in the educational program.

Assessment tools are a bank of control tasks, as well as a description of forms and procedures designed to determine the quality of mastering study material by students.)

2. List of assessment tools

The following assessment tools are used to determine the quality of mastering the academic material by students in the discipline/ practice:

No.	Assessment tool	Brief description of the assessment tool	Presentation of the assessment tool in the BAT
1	Test	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of a student	Bank of test tasks
2	Situational tasks	A method of control that allows you to assess the criticality of thinking and the degree of the material comprehension, the ability to apply theoretical knowledge in practice.	List of tasks
3	Control work	A tool of checking the ability to apply acquired knowledge for solving problems of a certain type by topic or section	Set of control tasks in variants
4	Interview	A tool of control organized as a special conversation between the teacher and the student on topics related to the discipline being studied, and designed to clarify the amount of knowledge of the student on a specific section, topic, problem, etc.	Questions on topics/sections of the discipline
5	Prescription	A tool of checking the ability to prescribe drugs	List of drugs for prescribing

3. A list of competencies indicating the stages of their formation in the process of mastering the educational program and the types of evaluation tools

Code and formulation of competence*	Stage of competence formation	Controlled sections of the discipline	Assessment tools
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	General prescriptions	Interview, Test Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	General pharmacology	Interview, Test Control work, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Medicines that regulate the functions of the peripheral nervous system	Interview, Situational tasks, Test, Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Medicines that regulate the functions of the central nervous system	Interview, Situational tasks, Test, Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Medicines that regulate the functions of executive bodies and systems	Interview, Situational tasks, Test, Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Medicines that regulate metabolic processes	Interview, Situational tasks, Test, Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Medicines that inhibit inflammation and affect immune processes	Interview, Situational tasks, Test, Control work Prescriptions, Exam
UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Entry, Current, Mid-term	Antimicrobial and antiparasitic agents	Interview, Situational tasks, Test, Control work Prescriptions, Exam

4. The content of the assessment tools of entry, current control

The content of the assessment tool (questions, tests, situational tasks, list of drugs for prescriptions) for conducting current control and mid-term assessment of students in this discipline is presented on the Educational Portal of the PRMU

https://sdo.pimunn.net/course/view.php?id=3221

Entry /current control is carried out by the discipline teacher when conducting classes in the form of: *Interview, Report, Situational tasks, Test, Control work, Prescriptions,*

Assessment tools for current control.

(the teacher specifies all types of tasks for conducting current control, if this is provided for in the WPD, in the form given below as an example. The current control is carried out in the context of the assessment of competencies provided for in the WPD, and not topics or sections of the discipline)

4.1. Tasks for the assessment of competence UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

Control work

Variant 1

1. Atropine sulfate (solution for injection) - 0.1% solution in 1 ml ampoule for subcutaneous, intramuscular and intravenous administration;
2. Epinephrine (solution for injection) A solution 0.1% in the 1 ml ampoules for subcutaneous administration
3. Galantamine (solution for injection) A solution 1% in the 1 ml ampoules for subcutaneous administration
4. Metoprolol (tablets) 10 Tablets 0,025. Once daily
5. Salbutamol (tablets). - 10 Tablets 0.002

List drugs:

1. For relieving of spasm of bronchial smooth muscle.
2. For increasing peripheral vascular resistance

4.2. Questions for interviews *:* UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

Questions for interview

1. Direct M-cholinomimetics
2.Reversible acetylcholinesterase inhibitors. Neostigmine and galantamine.
3.Irreversible acetylcholinesterase inhibitors. The symptoms of poisoning. Measures to help.
4.The symptoms of poisoning of muscarine. Measures to help
5.Muscarinic antagonists.
6.The symptoms of poisoning of atropine. Measures to help
7.N-cholinomimetics
8.Classification of adrenergic agonists
9.Comparative characteristics of norepinephrine and epinephrine
10.The sympathomimetics. Ephedrine.
11.Classification of antiadrenergic drugs

4.3. Test questions for*:* UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

Question	Competence code (according to the WPD)
1. RELATIONSHIP BETWEEN ARTERIAL BLOOD PRESSURE (BP), CARDIAC OUTPUR (CO) AND PERIPHERAL VASCULAR RESISTANCE (PVR) CAN BE DESCRIBED AS: 1) BP = COxPVR 2) BP = CO/PVR 3) BP = PVR/CO 4) None of the above 2. IF A FIBRINOLYTIC DRUG IS USED FOR TREATMENT OF ACUTE MI, THE ADVERSE DRUG EFFECT THAT IS MOST LIKELY TO OCCUR IS:	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

1) Acute renal failure
2) Development of antiplatelet antibodies
3) Encephalitis secondary to liver dysfunction
4) Hemorrhagic stroke
5) Neutropenia

3. INCREASED SERUM LEVELS OF WHICH OF THE FOLLOWING AY BE ASSOCIATED WITH A DECREASED RISK OF THEROSCLEROSIS?
1) Very low-density lipoproteins (VLDL)
2) Low-density lipoproteins (LDL)
3) Intermediate – density lipoproteins (IDL)
4) High-density lipoproteins (HDL)
5) Cholesterol

4. IF THE PATIENT HAS A HISTORY OF GOUT, WHICH OF THE FOLLOWING DRUGS IS MOST LIKELY TO EXACERBATE THIS CONDITION?
1) Colestipol
2) Gemfibrozil
3) Lovastatin
4) Niacin
5) Simvastatin

5. AFTER BEING COUNSELED ABOUT LIFESTYLE AND DIETARY CHANGES, THE PATIENT WAS STARTED ON ATORVASTATIN. DURING HIS TREATMENT WITH ATORVASTATIN, IT IS IMPORTANT TO ROUTINELY MONITOR SERUM CONCENTRATIONS OF:
1) Blood urea nitrogen (BUN)
2) Alanine and aspartate aminotransferase
3) Platelets
4) Red blood cells
5) Uric acid

6. SIX MONTHS AFTER BEGINNING ATORVASTATIN, THE PATIENT'S TOTAL AND LDL HOLESTEROL CONCENTRATIONS REMAINED ABOVE NORMAL AND HE CONTINUED TO HAVE ANGINAL ATTACKS DESPITE GOOD ADHERENCE TO HIS ANTIANGINAL MEDICATIONS. HIS PHYSICIAN DECIDED FOR NIACIN. THE MAJOR RECOGNIZED MECHANISM OF ACTION OF NIACIN IS:
1) Decreased lipid synthesis in adipose tissue
2) Decreased oxidation of lipids in endothelial cells
3) Decreased secretion of VLDL by the liver
4) Increased endocytosis of HDL by the liver
5) Increased lipid hydrolysis by lipoprotein Lipase

7. FOLLOWING DRUGS ACT ON IMIDAZOLINE RECEPTOR:
1) Moxonidine
2) Dexmedetomidine
3) Tizanidine
4) All of the above

8. WHICH ONE OF THE FOLLOWING DRUGS INCREASE DIGOXIN PLASMA CONCENTRATION BY A PHARMACOKINETIC MECHANISM?
1) Captopril
2) HydrochoroTZD
3) Lidocaine
4) Quinidine
5) Sulfasalazine

9. A 55-YEAR-OLD PATIENT CURRENTLY RECEIVINGOTHER DRUGS

FOR ANOTHER CONDITION IS TO BE STARTED ON DIURETIC THERAPY FOR MILD HEART FAILURE. TZDS ARE NOWN TO REDUCE THE EXCRETION OF:
1) Diazepam
2) Fluoxetine
3) Imipramine
4) Lithium
5) Potassium

10. A HYPERTENSIVE PATIENT HAS BEEN USING NIFEDIPINE FOR SOME TIME WITHOUT UNTOWARD EFFECTS. IF HE EXPERIENCES A RAPIDLY DEVELOPING ENHANCEMENT OF THE ANTIHYPERTENSIVE EFFECT OF THE DRUG, IT IS PROBABLY DUE TO:
1) Concomitant use of antacids
2) Fods containing tyramine
3) Grapefruit juice
4) Induction of drug metabolism
5) Over – the – counter decongestants

11. A DRUG LACKING VASODILATOR PROPERTIES THAT IS USEFUL IN ANGINA IS:
1) Isosorbide dinitrate
2) Metoprolol
3) NIfedipine
4) Nitroglycerin
5) Verapamil

12. ALDOSTERONE RELEASE IS STIMULATED BY:
1) AT I
2) AT
3) AT III
4) Both (2) and (3)

13. WHICH ONE OF THE FOLLOWING DRUGS IS USED IN THE TREATMENT OF MALE MPOTENCE AND ACTIVATES PROSTAGLANDIN E1 RECEPTORS?
1) Alprostadil
2) Fluoxetine
3) Mifepristone
4) Sildenafil
5) Zafirlukast

14. A TREATMENT OF ANGINA THAT CONSISTENTLY DECREASES THE HR AND CAN PREVENT VASOSPASTIC ANGINA ATTACKS IS:
1) Isosorbide dinitrate
2) NIFedipine
3) Nitroglycerin
4) Propranolol
5) Verapamil

15. IN A PATIENT RECEIVING DIGOXIN FOR CONGESTIVE HEART FAILURE, CONDITION THAT MAY FACILITATE THE APPEARANCE OF TOXICITY INCLUDE:
1) Hyperkalemia
2) Hypernatremia
3) Hypocalcemia
4) Hypomagnesemia
5) All of the above

16. ACTIVATION OF ENDOTHELIN RECEPTOR ETA, LEADS TO:

1) Vasoconstriction
2) Bronchoconstriction
3) Aldosterone release
4) All of the above

17. METHYLXANTHINE DRUGS SUCH AS AMINOPHYLLINE CAUSE WHICH ONE OF THE FOLLOWING?
1) Vasoconstriction in many vascular beds
2) Decrease in the amount of cAMP in mast cells
3) Bronchodilation
4) Activation of the enzyme PDE
5) Sedation

18. DRUGS USED IN ASTHMA THAT OFTEN CAUSE TACHYCARDIA AND TREMOR INCLUDE:
1) Beclomethasone
2) Cromolyn sodium
3) Ipratropium
4) Metaproterenol
5) All of the above

19. FOLLOWING POTASSIUM SPARING DIURETIC INHIBITS ACTION OF ALDOSTERONE:
1) Amiloride
2) Triamterene
3) Spironolactone
4) All of the above

20. IN PATIENTS WITH CHRONIC GRANULOMATOUS DISEASE WHICH OF THE FOLLOWING AGENTS INCREASES THE SYNTHESIS OF TUMOR NECROSIS FACTOR, LEADING TO ACTIVATION OF PHAGOCYTOSIS?
1) Aldesleukin
2) Cyclosporine
3) Filgrastim
4) Infliximab
5) Interferon gamma

21. THE MECHANISM OF ACTION OF CYCLOSPORINE INVOLVES:
1) Activation of calcineurin
2) Binding to cyclophilin to cause inhibition of a cytoplasmic phosphatase
3) Blockade of interleukin – 2- receptors
4) Inhibition of phospholipase A2
5) Suppression of bone marrow progenitors

22. WHICH ONE OF THE FOLLOWING DRUGS PREDICTABLY PROLONGS THE PR INTERVAL AND INCREASES CARDIAC CONTRACTILITY?
1) Digoxin
2) Lidocaine
3) Propranolol
4) Quinidine
5) Verapamil

23. WHICH OF THE FOLLOWING IS THE DRUG OF CHOICE FOR MANAGEMENT OF CARDIAC ARRHYTHMIAS THAT OCCUR IN DIGITALIS TOXICITY?
1) Amiodarone
2) Lidocaine
3) Propranolol
4) Sotalol

5) Prazosin

24. A 54-YEAR-OLD WOMAN WITH SEVERE HYPERCHOLESTEROLEMIA IS TO BE TREATED WITH A COMBINATION OF NIACIN AND ATORVASTATIN. WITH THIS DRUG COMBINATION, IT IS IMPORTANT THAT THE PATIENT BE MONITORED CLOSELY FOR SIGNS OF:

1) Agranulocytosis
2) Gallstones
3) Lactic acidosis
4) Myopathy
5) Thyrotoxicosis

25. REGARDING VERAPAMIL, WHICH ONE OF THE FOLLOWING STATEMENTS IS FALSE?

1) Angina pectoris is an important indication for the use of verapamil
2) Contraindicated in the asthmatic patient
3) Relaxes vascular smooth muscle
4) Slows the depolarization phase of the action potential in AV nodal cells
5) Used in management of supraventricular tachycardias

26. WHAT DRUG IS USED TO PREVENT EMBOLISM IN THE LUNG AND DURING MI?

1) Alteplase
2) Human growth hormone
3) Granulocyte–macrophage colony – stimulating factor (GM–CSF)
4) EPOGEN (EPO)
5) None of the above

27. WHICH OF THE FOLLOWING CARDIOVASCULAR AGENTS IS CLASSIFIED CHEMICALLY AS A GLYCOSIDE?

1) Nifedipine
2) Digoxin
3) Flecainide
4) Cholestyramine
5) Warfarin

28. INHIBITION OF CARBONIC ANHYDRASE RESULTS IN:

1) Abolition of NaHCO3 reabsorption in proximal tubule
2) Enhanced of NaHCO3 reabsorption in proximal tubule
3) Enhanced NAHCO3 secretion in distal tubule
4) None of the above

29. WHICH OF THE FOLLOWING CYCLOTRON PRODUCED RADIOPHARMACEUTICALS IS USED FOR ASSESSING REGIONAL MYOCARDIAL PERFUSION AS PART OF AN EXERCISE STRESS TEST?

1) Thallous chloride 201TI USP
2) Sodium iodide 123I
3) Gallium citrate 67Ga USP
4) Indium 111In pentetate
5) Cobalt 57Co cyanocobalamin

30. MARY HAS A FAMILY HISTORY OF HEART DISEASE AND WONDERS IF GARLIC WOULD BE BENEFICIAL TO HER. WHICH OF THE FOLLOWING STATEMENTS IS CORRECT ABOUT GARLIC?

1) Enteric-coated tablets release their contents in the stomach
2) Side effects include heartburn, flatulence, and sweating
3) The safety of garlic in pregnancy is unknown
4) Garlic does not interact with warfarin

31. EXERTION–INDUCED ANGINA, WHICH IS RELIEVED BY REST,

NITROGLYCERIN, OR BOTH, IS REFERRED TO AS:
1) Prinzmetal's angina
2) Unstable angina
3) Classic angina
4) Variant angina
5) Preinfarction angina

32. MYOCARDIAL OXYGEN DEMAND IS INCREASED BY ALL OF THE FOLLOWING FACTORS EXCEPT:
1) Exercise
2) Smoking
3) Cold temperatures
4) Isoproterenol
5) Propranolol

33. WHICH OF THE FOLLOWING AGENTS USED IN PRINZMETAL'S ANGINA HAS SPASMOLYTIC ACTIONS, WHICH INCREASE CORONARY BLOOD SUPPLY?
1) Nitroglycerin
2) Nifedipine
3) Timolol
4) Isosorbide mononitrate
5) Propranolol

34. THE ORAL ABSORPTION OF FOLLOWING OSMOTIC DIURETIC IS NEGLIGIBLE:
1) Glycerin
2) Mannitol
3) Isosorbide
4) All of the above

35. MAXIMAL MEDICAL THERAPY FOR TREATING ANGINA PECTORIS IS REPRESENTED BY WHICH OF THE FOLLOWING CHOICES?
1) Diltiazem, verapamil, nitroglycerin
2) Atenolol, isoproterenol, diltiazem
3) Verapamil, nifedipine, propranolol
4) Isosorbide, atenolol, diltiazem
5) Nitroglycerin, isosorbide, atenolol

36. THE TERM ISCHEMIC HEART DISEASE (IHD) IS USED TO DESIGNATE ALL OF THE FOLLOWING CONDITIONS EXCEPT:
1) Angina pectoris
2) Sudden cardiac death
3) Congestive heart failur (CHF)
4) Arrhythmias

37. WHICH OF THE FOLLOWING THROMBOLYTIC AGENTS WOULD BE APPROPRIATE AT THIS TIME?
1) Anisoylated plasminogen streptokinase activator complex (APSAC)
2) Streptokinase (SK)
3) Recombinant tissue-type plasminogen activator (t-PA)

38. STRONG ANTICHOLINERGIC EFFECTS LIMIT THE ANTIARRHYTHMIC USE OF:
1) Quinidine
2) Procainamide
3) Tocainide
4) Flecainide
5) Disopyramide

39. FOLLOWING LOOP DIURETIC IS A PHYNOXY ACETIC ACID

DERIVATIVE:
1) Furosemide
2) Bumetanide
3) Ethacrynic acid
4) All of the above

40. FOLLOWING POTASSIUM SPARING DIURETIC IS A MINERALOCORTICOID RECEPTOR ANTAGONIST:
1) Amiloride
2) Triamterene
3) Spironolactone
4) All of the above

41. A PATIENT RECEIVING A CLASS I ANTIARRHYTHMIC AGENT ON A CHRONIC BASIS COMPLAINS OF FATIGUE, LOW-GRADE FEVER, AND JOINT PAIN SUGGESTIVE OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE). THE PATIENT IS MOST LIKELY RECEIVING:
1) Lidocaine
2) Procainamide
3) Quinidine
3) Flecainide
4) Propranolol

42. WHICH OF THE FOLLOWING DRUGS IS A CLASS IV ANTIARRHYTHMIC THAT IS PRIMARILY INDICATED FOR THE TREATMENT OF SUPRAVENTRICULAR TACHYARRHYTHMIAS?
1) Lbutilide
2) Mexiletine
3) Diltiazem
4) Quinidine
5) Propranolol

43. WHICH OF THE FOLLOWING AGENTS HAS A DIRECT EFFECT ON THE AV MODE, DELAYING CALCIUMCHANNEL DEPOLARIZATION?
1) Lidocaine
2) Diltiazem
3) Bretylium
4) Quinidine
5) Lbutilide

44. WHICH OF THE FOLLOWING DRUGS IS A CLASS III ANTIARRHYTHMIC AGENT THAT IS EFFECTIVE IN THE ACUTE MANAGEMENT OF ATRIAL FIBRILLATION OR ATRIAL FLUTTER OF RECENT ONSET?
1) Bretylium
2) Lbutilide
3) Metoprolol
4) Disopyramide

45. WHICH OF THE FOLLOWING GROUPS OF SYMPTOMS IS MOST OFTEN ASSOCIATED WITH A PATIENT WHO HAS RIGHT-SIDED HEART FAILURE?
1) Nocturia, rales, paroxysmal nocturnal dyspnea
2) Paroxysmal nocturnal dyspnea, pedal edema, jugular venous distention, hepatojugular reflux
3) Jugular venous distention, hepatojugular reflux, pedal edema, shortness of breath
4) Hepatojugular reflux, jugular venous distension, pedal edema, abdominal distention

5) Paroxysmal nocturnal dyspnea, jugular venous distention, abdominal distention,
shortness of breath

46. WHICH OF THE FOLLOWING COMBINATIONS OF DRUGS, WHEN USED TOGETHER, REDUCE BOTH PRELOAD AND AFTERLOAD?
1) Nitroglycerin and isosorbide dinitrate
2) Hydralazine and isosorbide dinitrate
3) Captopril and methyldopa
4) Prazosin and angiotension II
5) Hydralazine and methyldopa

47. WHEN DIGOXIN IS USED IN A PATIENT WITH CONGESTIVE HEART FAILURE (CHF), IT WORKS BY EXERTING A POSITIVE EFFECT ON:
1) Stroke volume
2) Total peripheral resistance
3) HR
4) Blood pressure
5) Venous return

48. BECAUSE OF PROVEN BENEFICIAL EFFECTS ON "CARDIAC REMODELING", THESE AGENTS ARE NOW INDICATED AS FIRST LINE THERAPY IN CHF PATIENTS. WHICH OF THE FOLLOWING IS REPRESENTATIVE OF THIS GROUP OF DRUGS?
1) HydrochloroTZD
2) Enalapril
3) Furosemide
4) Carvedilol
5) Bumetanide

49. FOR TREATING THE PATIENT WITH CONGESTIVE HEART FAILURE (CHF), WHICH OF THE FOLLOWING DOSAGES OF DOPAMINE IS SELECTED FOR ITS POSITIVE INOTROPIC EFFECTS?
1) 2.0 mg/kg/min
2) 5–10 mg/kg/min
3) 10–20 mg/kg/min
4) 40 mg/kg/min
5) 40 mg/kg/min

50. MILRINONE IS AN EXAMPLE OF:
1) PDE I inhibitor
2) PDE II inhibitor
3) PDE III inhibitor
4) PDE IV inhibitor

Answer keys

Question number	Correct answer	Question number	Correct answer	Question number	Correct answer	Question number	Correct answer	Question number	Correct answer
1	1	**2**	4	**3**	4	**4**	4	**5**	4
6	3	**7**	1	**8**	4	**9**	4	**10**	3
11	2	**12**	4	**13**	1	**14**	5	**15**	4
16	4	**17**	3	**18**	4	**19**	3	**20**	5
21	2	**22**	1	**23**	2	**24**	4	**25**	2
26	1	**27**	2	**28**	1	**29**	1	**30**	2

31	3	**32**	5	**33**	2	**34**	2	**35**	4
36	3	**37**	3	**38**	5	**39**	3	**40**	3
41	2	**42**	3	**43**	2	**44**	2	**45**	4
46	2	**47**	1	**48**	2	**49**	2	**50**	3

5. The content of the assessment tools of mid-term assessment

Mid-term assessment is carried out in the form of an exam.

The content of the assessment tool (questions, tests, situational tasks, list of drugs for prescriptions) for conducting current control and mid-term assessment of students in this discipline is presented on the Educational Portal of the PRMU https://sdo.pimunn.net/course/view.php?id=3221

5.1 The list of control tasks and other materials necessary for the assessment of knowledge, skills and work experience

5.1.1. Test questions for the discipline exam

Question	Competence code (according to the WPD)
1. PARENTERAL ROUTES OF ADMINISTRATION ARE: 1) oral 2) sublingual 3) on skin application 4) intramuscular 5) intravenous 6) rectal 2. THE DRUG SUBSTANCES THAT EXCITE SOME RECEPTORS AND BLOCK OTHERS ARE TERMED AS 1) agonist-antagonists 2) partial agonists 3) antagonists 4) full agonists 3. MUTAGENIC EFFECTS OF THE DRUG SUBSTANCE ARE 1) adverse effects on the fetus, resulting in congenital malformations 2) damage to the genetic apparatus, leading to changes in the offspring genotype 3) adverse effects on the embryo that do not cause birth defects 4) adverse effects on the fetus, retarding its development 5) the action on the fetus 4. IRRESISTABLE URGE TO RE-IN TAKE OF MEDICINAL SUBSTANCES ARE TYPICAL FOR 1) accumulation 2) tachyphylaxis 3) drug dependence 4) addiction 5. THE ADVERSE EFFECTS ON THE EMBRYO, NOT ACCOMPANIED BY THE DEVELOPMENT OF CONGENITAL MALFORMATIONS ARE TERMED AS… 1) mutagenic effects 2) teratogenic effects 3) embriotoxic effects	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

4) fetotoxic effects

6. THE SUBSTANCES USED IN INSULIN OVERDOSE ARE
1) adrenaline
2) glibenclamide
3) akaraboza
4) metformin

7. THE MECHANISM OF ATROPINE ACTION IN POISONING BY POC IS
1) blockade of the M-cholinergic receptors
2) activation of M-cholinergic receptors
3) acceleration of poison elimination from the body
4) recovery of acetylcholinesterase activity
5) inhibition of the enzyme acetylcholinesterase

8. DIURETICS, USED FOR FORCED DIURESIS ARE
1) dihlotiazid
2) furosemide
3) clopamide
4) spironolactone

9. OVERDOSAGE OF PROCAINE (NOVOCAINE) COULD RESULT IN …
1) depression of the respiratory center
2) stimulation of the respiratory center
3) a drastic fall in arterial pressure
4) psychological dependence
5) drastically arterial pressure increase

10. EMERGENCY PROCEDURES IN CASE OF DOSAGE OF PROCAINE, THAT RESULT FROM INFILTRATION ANESTHESIA ARE TO
1) inject the place of anesthetic use with a solution of epinephrine (adrenaline)
2) administer CNS depressants
3) administer antihypertensive drugs
4) apply artificial respiration
5) make blood transfusion

11. WILL HAVE A POSITIVE EFFECT DURING PEPTIC ULCER DURING GIVING ORALLY
1) mustard
2) benzocaine
3) procaine (Novocain)
4) tetracaine (dicain)
5) decoction of Oak bark
6) teppentin oil

12. SOLUTION AMMONIA
1) is a synonym for "nashatypny spipt"
2) refers to a group irritants
3) contraindication is alcohol intoxication
4) suppresses the central nervous system
5) has an astringent effect

13. IMPROVE THE TRANSFER OF EXCITATION IN THE

NEUROMUSCULAR JUNCTION AND IMPROVES SKELETAL MUSCLE TONE IN INFANTS, PARESIS, PARALYSIS
1) M-cholinomimetics
2) N-cholinoblocars
3) M-H cholinomimetics
4) antiholinesteraznae agent

14. M-CHOLINOMIMETICS DIRECTLY STIMULATE RECEPTORS
1) neuroeffector synapses of parasympathetic innervation
2) neuroeffector synapses of the sympathetic innervation
3) chromaffin cells of the adrenal medulla
4) of the carotid glomeruli

15. N-CHOLINERGIC RECEPTORS OF MUSCULAR ARE STIMULATED BY
1) tubocurarine
2) ditilin
3) benzogeksony
4) gigrony

16. INDICATIONS FOR USE OF PILOCARPINE
1) intestinal atony
2) asthma
3) glaucoma
4) study of the fundus

17. B1 - ADRENOCEPTOR AGONIST IS
1) izadrin
2) fenoterol
3) salbutamol
4) dobutamine

18. GALAZOLIN
1) intravenously
2) used for hypertension
3) used in rhinitis

19. DRUG THAT ACTS MAINLY DUE TO ENHANCED RELEASE OF NOREPINEPHRINE FROM ADRENERGIC NEURONS ENDINGS IS
1) ephedrine
2) adrenaline
3) norepinephrine
4) izadrin

20. B1, B2 - ADRENOCEPTOR AGONISTS HAS A BRONCHODILATOR EFFECT, BECAUSE THERE ARE STIMULATED
1) β1 - adrenergic receptors of bronchial smooth muscle
2) β2 - adrenergic receptors of bronchial smooth muscle
3) the adrenalin glands
4) release of noradrenaline from the nerve endings of adrenergic bronchi

21. B1 - ADRENOCEPTOR AGONISTS EFFICACY IN HEART FAILURE, AS IT INCREASE

1) the strength of heart contractions
2) heart rate
3) atrioventricular conduction
4) automatism cardiomyocytes

22. B - BLOCKERS FOR ANGINA EFFECTIVE BECAUSE
1) expand coronary vessels
2) reduce the work of the heart and decrease myocardial oxygen demand
3) stimulate anaerobic metabolic processes in the cardiomyocytes
4) slow atrioventricular conduction

23. THE ACTION OF RESERPINE ON THE CARDIOVASCULAR SYSTEM
1) increase the frequency and strength of cardiac contractions
2) a reduction in the frequency and strength of heart contractions
3) increase in the tone of blood vessels
4) decrease in blood pressure

24. SPECIFIC SIDE EFFECT OF B1 - ADRENOBLOCKERS
1) bradycardia
2) peripheral vascular spasm
3) bronchoconstriction
4) increase in the tone and contractile activity of the myometrium

25. CONTRAINDICATED IN ATRIOVENTRICULAR BLOCK
1) tamsulosin
2) prazosin
3) inderal
4) phentolamine

26. ACUTE POISONING WITH ETHYL ALCOHOL CHARACTERIZED BY
1) the deep depression of the central nervous system functions
2) partial or complete loss of consciousness
3) muscle relaxation
4) inhibition of reflexes
5) inhibition of respiration and cardiac activity
6) increase in blood pressure

27. ETHYL ALCOHOL
1) extends the vessels of the skin
2) causes an increase in body temperature
3) contributes to the warming of the cold
4) to cold can contribute supercooling
5) strengthens the heart

28. HYPNOTICS
1) phenobarbital
2) nitrazepam
3) carbamazepine
4) sodium bromide
5) tincture valerian

29. MECHANISM CAUSED THE ACTING OF BARBITURATES

1) increasing the braking effect of GABA
2) an increase in the synthesis of GABA
3) an increase in the synthesis of acetylcholine
4) the blockade of GABA receptors
5) decreasing the synthesis of GABA

30. HYPNOTIC BENZODIAZEPINE
1) zolpidem
2)phenazepamum
3) diazepam
4) etaminal sodium
5) nitrazepam
31. ANTIDOTE OF OPIOIDS IN CASE OF POISONING
1) pepsin
2) naloxone
3) levamisole
4) adrenaline

32. DRUG DEPENDENCE CAUSE
1) non-steroidal anti-inflammatory agents
2) opioid analgesics
3) M-cholinomimetics
4) cardiac glycosides

33. NARCOTIC ANALGESICS ARE USED
1) anti-inflammatory agents
2) with severe pain (in trauma, myocardial infarction, cancer)
3) desensitizing
4) dental pain

34. ANTIPSYCHOTIC EFFECTS ARE EXPLAINED BY
1) adrenergic stimulation processes in the central nervous system
2) inhibition of the adrenergic processes in the central nervous system
3) stimulation of dopaminergic processes in the CNS
4) inhibition of dopamine in the central nervous system processes

35. FENTANYL IS USED FOR NEYROLEPTANALGEZIA IN COMBINATION WITH
1) chlorpromazine
2) ftorfenazina
3) droperidole
4) clozapine

36. ANXIOLYTICS, SEROTONIN RECEPTOR AGONIST
1) buspirone
2) diazepam
3) phenazepamum
4) meson

37. EFFECTS DIAZEPAM RELATED TO ITS EFFECT ON THE
1) dopamine receptors
2) adrenergic receptors
3) benzodiazepine receptors
4) opioid receptors

38. GROUPS ANTIPARKINSONIAN
1) central cholinergic antagonists
2) block dopamine receptors
3) drugs for enhancing dopaminergic processes in the CNS
4) NMDA-receptor blockers
5) stimulants of glutamatergic processes in the CNS

39. MIDANTAN
1) stimulates cholinergic receptors
2) non-competitive NMDA-receptor inhibitor
3) inhibits dopa-carboxylase
4)in parkinsonian disease reduces rigidity and hypokinesia
5) performance is inferior levodopa

40. THE BENZODIAZEPINE ANTAGONIST
1) diazepam
2) phenazepamum
3) flumazenil
4) buspirone

41. TONE OF VASCULAR BRAIN UNDER CAFFEINE IS
1) increases
2) decreases
3) no change

42. PREPARATION POSSESSING MUCOLYTIC ACTION
1) codeine
2)bromhexinum
3) cititon
4) salbutamol

43. THE BRONCHODILATOR EFFECT OF ADRENALINE IN BRONCHIAL ASTHMA CAUSED BY
1) β2-adrenergic stimulation
2) stimulation of M-cholinergic receptors
3) the blockade of N-cholinergic receptors
4) stimulation of H1-gistaminoretseptorov

44. THE DRUG OF FIRST CHOICE FOR RELIEF OF ASTHMA ATTACKS
1) beclomethasone
2) salbutamol
3) ketotifen
4) cromolyn sodium

45. BRONCHODILATORS OF MYOTROPIC ACTION
1) theophylline
2) ephedrine
3) formoterol
4) zafirlukast

46. EFFECTS TYPICAL FOR CARDIAC GLYCOSIDES IN THERAPEUTIC DOSES
1) increase in heart rate

2) strengthening the contractions of the heart
3) facilitation of atrioventricular conduction
4) increasing myocardial oxygen consumption per unit of time

47. ACTIVATED BY DOBUTAMINE ACTION AT THE HEART
1) phosphodiesterase III
2) adenylate cyclase
3) Na, K - ATPase
4) cyclooxygenase

48. DIGOXIN IS APPLIED WITH ATRIAL FIBRILLATION, BECAUSE OF
1) has a negative inotropic effect
2) inhibits the conduction of excitation on conducting system of the heart
3) reduces cardiac automatism

49. SIDE EFFECT OF DOBUTAMINE
1) bradycardia
2) cardiac arrhythmias
3) atrioventricular block
4) orthostatic collapse

50.PREPARETION OF NITROGLYCERIN PROLONGED ACTION
1) trinitrolong
2) fenigidin
3) verapamil
4) clonidine

51. DURATION OF ACTING OF NITROGLYCERIN IS
1) 8.7 hours
2) 4.3 hours
3) up to 30 minutes
4) 5-7 minutes

52. THE BASIC MECHANISMS OF THE HYPOTENSIVE EFFECT OF POTASSIUM CHANNEL ACTIVATORS
1) vasodilation and reducing total peripheral resistance and
2) reduction of the heart
3) excretion of sodium ions and water
4) reduction in heart rate

53. DRY COUGH - SPECIFIC SIDE EFFECT OF
1) alpha-blockers
2) sympatholytics
3) angiotensin converting enzyme inhibitors
4) angiotensin receptor blockers

54. HYPOTENSIVE EFFECT GIGRONY IS EXPLAINED GY
1) depression of the vasomotor center
2) decrease in neurotransmitter reserves in the endings of postganglionic fibers
3) The blockade of parasympathetic ganglia
4) the blockade of sympathetic ganglia

55. MECHANISM OF VASODILATOR EFFECT OF PRAZOSIN
1) blocking the AT1 - angiotensin receptors

2) blocks α1 - adrenergic receptors
3) activates a potassium channel
4) releasing nitric oxide

56. THE MOST EFFICIENT DIURETIC IS
1) dichlotiazid
2) spironolactone
3) triamterene
4) ethacrynic acid

57. GENERAL LOCATION OF FUROSEMIDE AND ETHACRYNIC ACID ACTION
1) proximal tubules
2) thick segment of the ascending loop of Henley
3) the initial division of the distal tubule
4) the final division of the distal tubule

58. THE DRUG APPLIED TO FORCED DIURESIS
1) dichlotiazid
2) triamterene
3) spironolactone
4) furosemide

59. THE SYNTHETIC ANALOGUE OF PROSTAGLANDIN E2
1) omeprazole
2) ranitidine
3) pirenzepine
4) misoprostol

60. OSMOTIC LAXATIVE
1) magnesium sulphate
2) calcium chloride
3)sodium bromide
4) iron sulfate

Answer keys

1	345	31	2
2	1	32	2
3	2	33	2
4	2	34	4
5	3	35	3
6	1	36	1
7	1	37	3
8	2	38	1345
9	13	39	245
10	1	40	3
11	25	41	1
12	12	42	2
13	4	43	1
14	1	44	2
15	2	45	1
16	3	46	2
17	4	47	2
18	3	48	2

19	1	49	2
20	2	50	2
21	1	51	3
22	2	52	1
23	4	53	3
24	1	54	4
25	3	55	2
26	1234	56	4
27	13	57	2
28	12	58	4
29	1	59	4
30	235	60	1

5.1.2. Exam situational cases: UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)

1. The drug belongs to the group of local anesthetics. It has a fairly pronounced anesthetic activity. In large doses, it disrupts neuromuscular transmission. The effect on the cardiovascular system is manifested by a hypotensive and short-term antiarrhythmic effect. It is used for infiltration and conduction anesthesia. Repeated administration of the drug can lead to the appearance of red spots on the body, heavy sweating, tachycardia, mucosal edema, and bronchospasm. Identify the drug. Explain the cause of possible complications.

2. The drug is a quaternary ammonium compound. It causes miosis, hyperperistalsis, severe drooling, sweating, bradycardia. It is used for myasthenia gravis. Identify the drug and its group affiliation, explain the mechanism of development of the listed side effects.

3. These substances are often used in agriculture and in everyday life. When someone gets poisoned, it causes dizziness, headache, nausea, decreased visual acuity, miosis, heavy sweating, increased salivary gland secretion, vomiting, spastic abdominal pain, involuntary defecation, frequent urination, bradycardia are observed. Identify substances. Explain the mechanism of their action. Specify detoxification methods.

5.1.3. Exam theoretical questions

1. Definition of Pharmacology, links of Pharmacology with other medical sciences
2. Routes of administration and elimination of drugs. (Therapeutic and toxic meaning).
3. Definition of a dose. Classification
4. Mechanisms of drugs action.
5. Types of drugs action.
6. Types of drugs interaction. Effects of combined drugs action (types of synergism and antagonism).
7. Types of adverse effects of drugs.
8. Effects of drugs in the body in repeated administrations.
9. Drugs dependence (physical and psychiatric). Medical and social aspects of dependence.
10. Define: drug, medical preparation, drug form. Types of drugs origin.
11. General principles of the therapy of acute intoxication by medical com-pounds
12. Intoxication with cardiac glycoside. Treatment.
13. Drugs affecting afferent system.
14. Local anesthetics (esters).
15. Local anesthetics (amides).
16. General anesthetics (inhaled, non-inhaled)
17. N- cholinergic agonists.
18. M- cholinergic agonists.
19. Inhibitors of acetylcholinesterase.
20. M- cholinergic antagonists.

21. N- cholinergic antagonists. (ganglion blockers and curare like agents
22. α and β adrenergic agonists of direct and indirect action
23. β adrenergic antagonists.
24. α adrenergic antagonists and sympatholytic
25. Antipsychotic drugs (neuroleptics).
26. Analeptics predominantly affecting on the midbrain.
27. Sedative drugs.
28. Anxiolytic drugs

5.1.4. Exam list of drugs

Drugs affecting the afferent innervations

Drugs for local anesthesia

- trimecaine (1% solution in ampoules of 5 ml for anesthesia);
- lidocaine hydrochloride (2% solution in ampoules of 2 ml for anesthesia).

Drugs affecting the efferent innervation

Drugs acting on cholinergic synapses

M-cholinomimetic agents

- pilocarpine hydrochloride (1% solution in 10 ml bottles for eye drops).

Anticholinesterase agents

- galantamine hydrobromide (1% solution in 1ml ampoules for injection);
- neostigmine (tablets 0,015).

M- cholino blockers

- atropine sulfate (0.1% solution in 1 ml ampoules for injection);
- platyphylline hydrotartrate (tablets 0.005);

6. Criteria for evaluating learning outcomes

For the exam

Learning outcomes	**Assessment of competence developed**			
	unsatisfactory	**satisfactory**	**good**	**excellent**
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes	The minimum acceptable level of knowledge. A lot of light mistakes were made	The level of knowledge in the volume corresponding to the training program. A few light mistakes were made	The level of knowledge in the volume corresponding to the training program, without errors
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	Basic skills are demonstrated. Typical problems with light mistakes have been solved. All tasks have been completed, but not in full.	All basic skills are demonstrated. All the main tasks have been solved with light mistakes. All tasks have been completed, in full, but some of them with shortcomings	All the basic skills were demonstrated, all the main tasks were solved with some minor shortcomings, all the tasks were completed in full

Learning outcomes	Assessment of competence developed			
	unsatisfactory	**satisfactory**	**good**	**excellent**
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	There is a minimal set of skills for solving standard tasks with some shortcomings	Basic skills in solving standard tasks with some shortcomings are demonstrated	Skills in solving non-standard tasks without mistakes and shortcomings are demonstrated
Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve professional tasks. Repeated training is required	The formation of competence meets the minimum requirements. The available knowledge and abilities are generally sufficient to solve professional tasks, but additional practice is required for most practical tasks	The formation of competence generally meets the requirements, but there are shortcomings. The available knowledge, skills and motivation are generally sufficient to solve professional tasks, but additional practice is required for some professional tasks	The formation of competence fully meets the requirements. The available knowledge, skills and motivation are fully sufficient to solve complex professional tasks
The level of competence formation*	Low	Below average	Intermediate	High

For testing:

Mark "5" (Excellent) - points (100-90%)
Mark"4" (Good) - points (89-80%)
Mark "3" (Satisfactory) - points (79-70%)

Less than 70% – Unsatisfactory – Mark "2"

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