МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
«ГОМЕЛЬСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

КАФЕДРА ОБЩЕЙ И КЛИНИЧЕСКОЙ ФАРМАКОЛОГИИ

ФАРМАКОЛОГИЯ В ВОПРОСАХ И ОТВЕТАХ. СБОРНИК ТЕСТОВ

Учебно-методическое пособие для иностранных студентов 3 курса учреждений высшего медицинского образования, обучающихся на английском языке по специальности 1-79 01 01 «Лечебное дело»

PHARMACOLOGY IN QUESTIONS AND ANSWERS. TESTS

Course material aid for foreign students of the 3rd year of higher medical educational institutions studying in English in the speciality 1-79 01 01 «General Medicine»

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Сборник тестов содержит 347 тестовых заданий по основным разделам фармакологии в соответствии с типовой программой для студентов высших учебных медицинских учреждений. В последнем разделе сборника даны ответы на приведенные вопросы. В связи с тем, что вопросы, представленные в данном учебно-методическом пособии, носят не только контролирующий, но и обучающий характер, их можно использовать для углубления и систематизации знаний студентов по программным вопросам фармакологии. На базе приведенных тестов создана компьютерная версия, которая используется для предэкзаменационного тестирования.

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INTRODUCTION

The teaching aid is an element of a single educational and methodological complex. It is a guide in the development of educational material on pharmacology for independent work of students studying in English. The manual has been compiled in accordance with the program in clinical pharmacology in the specialty 1-79 01 01 «General Medicine», Minsk, 2015.

The educational tasks include control questions, test tasks (MCQ's) on general and specific issues of clinical pharmacology (pharmacodynamics, pharmacokinetics, adverse effects, indications and contraindications for prescribing drugs and their dosage, peculiarities of the use of drugs in different categories of patients). Recommendations for their implementation are given.

Completing assignments will allow the student to learn:

— work with the nomenclature of drugs and distribute them according to pharmacotherapeutic groups,

— to use knowledge of pharmacological effects, mechanisms of action, principles of dosage of drugs for effective and safe pharmacotherapy,

— to be guided in the issues of the interchangeability of various drugs.

The manual consists of 2 parts. The first part presents a methodology for preparing, passing and evaluating tests in clinical pharmacology, as well as control questions for sections of general and private clinical pharmacology.

The second part presents test tasks, including the classification of drugs, mechanisms of action, pharmacological effects, indications, and main contraindications for use, etc. It consists of 1069 tests of various levels of complexity.

Each question has 3–5 answers, one of which is correct. Correct answers are given at the end of textbook. This helps to use the test both for teaching and for self-monitoring and control of the student's knowledge in pre-examination testing.

Methodological work with the textbook will contribute to the assimilation of basic knowledge in pharmacology and can become a good basis for further training in pharmacotherapy and successful passing of the exam to confirm the diploma of higher education in foreign countries.

LIST OF ABBREVIATIONS

ACE	— angiotensin converting enzyme
AT	— antithrombin
AV	— atrioventricular
AMP	— adenosine monophosphate
CNS	— central nervous system
COX	— cyclooxygenase
cAMP	— 3,5-cyclic adenosine monophosphate
cGMP	— 3,5-cyclic guanosine monophosphate
DOCA	— desoxycorticosterone acetate
DOPA	— dihydroxyphenyl alanine
DEC	— diethyl carbamazine citrate
DNA	— deoxyribose nucleic acid
ECG	— electrocardiogram
etc.	— et cetera (and so on)
e.g.	— exempli gratia (for example)
GABA	— gamma aminobutyrie acid
g.i.t.	— gastrointestinal tract
HMG CoA	— hydroxymethyl glutaryl coenzyme A reductase
HIV	— human immunodeficiency virus
i.e.	— id est (that is)
IL	— interleucine
INH	— isonicotinic acid hydrazide
LTs	— leukotriene(s)
MAO	— monoamine oxidase
mRNA	— messenger ribonucleic acid
NO	— nitric oxide
O. volvulus	— onchocerca volvulus
P. falciparum	— plasmodium falciparum
P. vivax	— plasmodium vivax
PGI_2	— prostacycline
PG	— prostaglandin
PGs	— prostaglandin(s)
PAF	— platelet activating factor
PAS	— paraamino salicylic acid
RNA	— ribonucleic acid
S. haematobium	— schistosoma haematobium
$T_{1/2}$	— half-life period
TxA_2	— thromboxane A_2
t-RNA	— transfer ribonucleic acid
W. bancrofti	— wuchereria bancrofti

Chapter I
Methodology for learning and passing tests in pharmacology

The tests are intended to be used in the process of studying educational material on pharmacology, as well as to control the level of knowledge of students during the exam in the subject. Knowledge of the tests allows you to reach the required level of student training, which is necessary for working with drugs. Selected questions on relevant topics can be used for teaching and monitoring in the current and final practical sessions.

The first part of the manual presents control questions for sections of general and specific pharmacology. The assimilation of theoretical questions for each studied section presented in the manual will help prepare for the successful passing of testing during the exam in pharmacology.

The second part of the manual contains test items that include sections on general and specific pharmacology for generally accepted pharmacological groups. Tasks for general pharmacology contain questions on the creation of drugs, the main aspects of pharmacokinetics and pharmacodynamics. Tasks in private pharmacology include questions of classification, mechanism of action, pharmacological effects, side effects, indications, and contraindications to the use of drugs from all major sections of private pharmacology.

The tests are divided into several options, each of which contains 30 questions on different topics. Each question is followed by 3-5 possible answers, of which only one is correct.

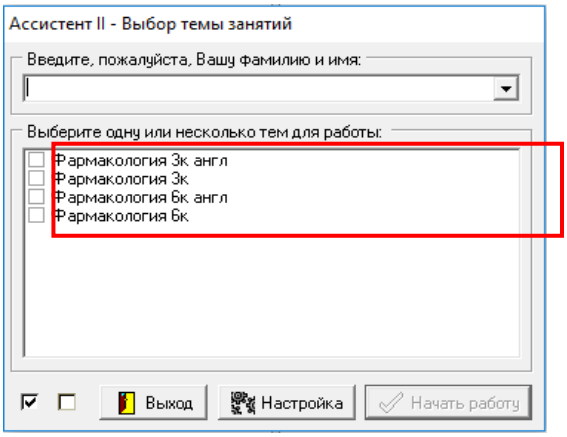
The list of correct answers to the asked questions, which help students to test themselves during independent work with tests, is presented on the last pages of the collection.

With the written version of the test, the student receives a variant of the task containing 30 test questions compiled by the method of random sampling. On the exam, each student, after indicating their data (full name, group, course, and faculty number), as well as the option number and the current date on the written answer sheet, carefully reads the questions, chooses the correct answers to them and notes in written answer sheet as follows: Question # – answer. For example: 1 – a 2 – b ... 19 – c, etc.

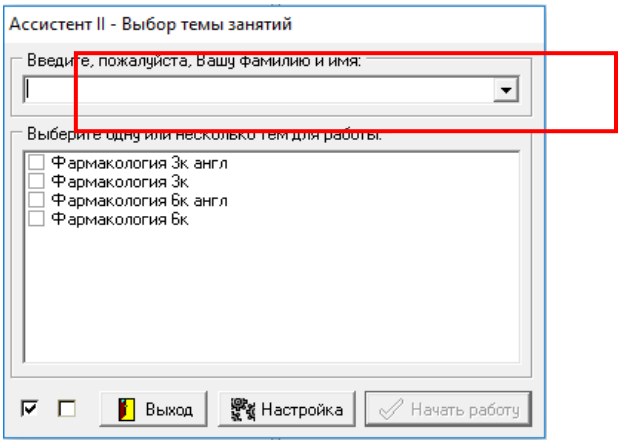
The work will be done with a ballpoint pen, neat, clear, and legible handwriting. Blots when completing tasks are undesirable since incomprehensible answers can be interpreted in the wrong way. Teachers check the students' examination sheets, assess the correctness of the answers given by the students and give marks on a ten-point system. The check evaluates the number of correct answers.

Testing on a computer takes place in the Student Testing Program, Assistant II, located on the D drive of the computer, in the «Student Testing Program» folder. The order of testing on a computer is as follows:

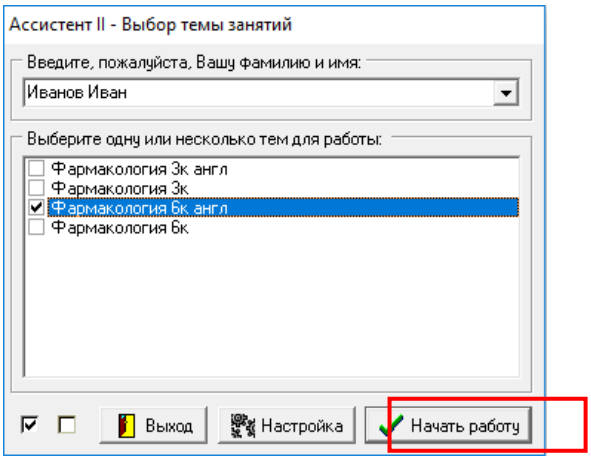
1. After the «Assistant II» splash screen appears, use the cursor to select the desired section.



2. Enter your last name and first name at the top of the Program.



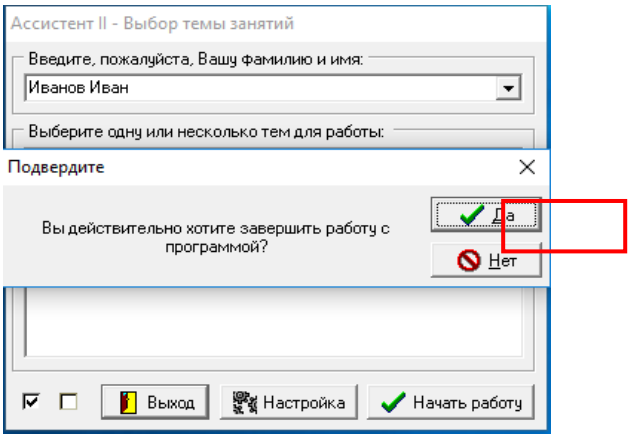
3. 1 In the lower right corner, click the Get Started button.



4. Choose one correct answer and click the «Next question» button.

5. Go to the next question.

6. After answering the last question, at the end of the program, click the «Yes» button.



The total testing time for 30 questions is 20 minutes. At the end of the testing period, unanswered questions are considered incorrect.

When giving marks for the passed testing of students, the teacher focuses on the following criteria:

Score on a 10-point scale	% of correct answers
0–3	0–70
4	71–75
5	76–80
6	81–85
7	86–90
8	91–95
9	96–99
10	100

Upon receiving an unsatisfactory mark, the student must, after re-preparation, pass the test again at the time specially allocated for these purposes by the department.

TOPIC AND CONTROL QUESTIONS FOR TEACHING

TOPIC 1: The subject of pharmacology. Terminology. Sources and stages of drug development. Medicine's legislation.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. The concept of treatment, the main therapeutic factors and methods of treatment. The essence of pharmacology as the science of managing the vital processes of the body with the help of chemicals. Historical stages of the formation of pharmacology as a science, the contribution of domestic scientists to the development of pharmacology. Sections and areas of pharmacology (neuropharmacology, immunopharmacology, chronopharmacology, etc.), clinical pharmacology. Pharmacy.

2. The concept of a medicinal substance, medicinal product, medicinal product, dosage form. Nomenclature of medicines. Sources of drugs, stages of drug development. The benefits and risks of using drugs. Society's attitude to medicines and the doctor's attitude to pharmacotherapy. Public control over the use of medicines.

3. The chemical nature of drugs. Chemical and physicochemical determinants of their pharmacological activity. Factors providing the therapeutic effect of drugs, pharmacodynamic action and placebo effects.

TOPIC 2: Fundamentals of pharmacokinetics. principles of drug dosing.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Transport of medicinal substances in the body - absorption, distribution, metabolism, excretion; movement of medicinal substances through barriers. Determinants of transfer. Water diffusion. Diffusion in lipids. Transport through membranes of substances with variable ionization. Active transport of substances. The main factors affecting the transport of drugs in the body.

2. Bioavailability. Ways of introducing drugs into the body, their goals, advantages, disadvantages. Presystemic elimination of drugs. Distribution of medicinal substances in the body (water spaces and cell compartments), distribution rate.

3. The main pharmacokinetic parameters are: bioavailability, volume of distribution (connection with water bodies of the body, variability of the volume of distribution depending on the properties of medicinal substances and the state of the body), clearance, half-life, elimination constant; their essence, principles of determination and quantitative expression, dimension, relationship, significance for the management of the dosage regimen of drugs. Pharmacokinetic

models (one-chamber, two-chamber). Quantitative laws of absorption and elimination of medicinal substances. The central dogma of pharmacokinetics: «The concentration of a drug in the blood is the main parameter for controlling the therapeutic effect of a drug».

4. Drug dosing targets and variables: dose, types of doses, modes, and intervals of administration. Introductory (loading, loading) dose: therapeutic meaning, calculation of an individual loading dose by pharmacokinetic parameters. Conditions and restrictions on the use of loading doses. Maintenance doses: therapeutic implications, calculation of maintenance doses to ensure an optimal dosing regimen.

5. The introduction of drugs into the bloodstream at a constant rate. Kinetics of drug concentration in blood and its dependence on pharmacokinetic parameters, solution concentration and rate of administration. Stationary equilibrium concentration of a drug in blood (CDB), time to reach it, calculation and control of CSS.

6. Intermittent (discrete) dosing: fluctuations in the concentration of a drug in the blood, therapeutic and toxic concentration ranges. Calculation of the CDB of a medicinal substance and the boundaries of its fluctuations (minimum (CDB min) and maximum (CDB max)) for discrete dosage of medicinal products, control of the concentration of a medicinal substance. Adequate discrete dosing interval.

TOPIC 3: Biotransformation and extraction of medicinal products. correction of dosage regime of drugs when changing clearance and volume of distribution.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. The need for biotransformation of drugs and its biological meaning, focus, tissue localization. The influence of biotransformation on the activity of drugs. The phases of metabolic transformations of drugs. Microsomal systems of xenobiotic metabolism: molecular organization, induction, and inhibition. The main types of biotransformation of drugs. Metabolism of drugs into toxic products. Clinical significance of biotransformation of drugs (population dispersion and genetic polymorphism of xenobiotic metabolism, the effect of gender, age, body weight, environmental factors, smoking, alcohol on the biotransformation of drugs); metabolic drug interactions. Diseases affecting the biotransformation of drugs.

2. Clearance as the main determinant of pharmacokinetics. Renal clearance of drugs and its components: filtration, active secretion, reabsorption; their quantitative and qualitative characteristics. Factors affecting renal clearance. Dependence of clearance on the physicochemical properties of drugs. Liver clearance of drugs: metabolic transformation and secretion into bile. Biological strategy for metabolic clearance. The main properties of substances excreted in the bile; determinants and limitations of hepatic clearance (enterohepatic drug cycle). Factors modifying drug clearance. Drug interactions: competition for secretory mechanisms, metabolic enzymes, ligand proteins, induction, and inhibition of drug metabolism.

3. Individual characteristics of the distribution and metabolism of drugs. Diseases affecting the pharmacokinetics of drugs. The strategy of individual pharmacotherapy aimed at maintaining the therapeutic concentration of the drug in the blood. Corrections for calculating individual values of the volume of distribution taking into account age, sex, body weight, overweight (obesity), sequestration of fluids, dehydration.

4. Principles of correction of drug dosage regimens for liver and kidney diseases (general approaches). Correction of the dosage regimen under the control of the total clearance of the drug; preferred options. Correction of the dosage regimen under the control of residual renal function, with liver damage and other pathological conditions, drug interactions.

TOPIC 4: Pharmacodynamics of drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. The nature of the biological action of chemicals. Physicochemical (non-electrolyte) action: the chemical nature of agents, their biological effects, and their use in medicine. Chemical mechanisms of action of drugs. Types of chemical reactions of drugs with a biosubstrate, the main mechanisms of the modulating effect of drugs on biological processes (molecular, metabolic, informational).

2. The concept of receptors in pharmacology, its origins, and developmental milestones. Molecular nature of drug receptors (regulatory proteins, enzymes, transport and structural proteins, nucleic acids). Signaling mechanisms of drug action (types of transmembrane signaling and secondary mediators). Quantitative laws of action of drugs. The law of decreasing the response of biological systems. Clark's model and its consequences. General view of the concentration-effect dependence in normal and lognormal coordinates.

3. Terms and concepts of quantitative pharmacology: effect, efficacy, activity, agonist (complete, partial), antagonist. Clinical difference between the concepts of activity and efficacy of drugs. Drug interaction. Antagonism: pharmacological (competitive, non-competitive), physiological, chemical. The nature of the change in the effect of drugs (activity, effectiveness) depending on the type of antagonism. Addiction and potentiation of the action of drugs. Methods for assessing the effect of drugs (gradual, quantum), their essence and clinical applications. Parameters for quantifying the activity and effectiveness of drugs.

4. Selectivity and specificity of drug action. Variability and variability of drug action. Hyporeactivity, hyperreactivity, hypersensitivity, idiosyncrasy. Tolerance and tachyphylaxis. Cumulation. The reasons for the variability of the action of drugs. Drug addiction.

5. Types of doses: minimum, average, and higher therapeutic, single, daily and course, introductory and maintenance doses, toxic dose. Assessment of the safety of medicines. Therapeutic index and standard safety margins.

6. Therapeutic, side and toxic effects of drugs, their nature from the standpoint of the concept of receptors. A therapeutic strategy for combating side and toxic effects of drugs. The influence of drugs on the fetus and the course of pregnancy, the concept of embryotoxic, teratogenic, fetotoxic action.

TOPIC 5: Drugs affecting the peripheral nervous system. Cholinergic drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. General structure diagram, neurotransmitters and receptors of the peripheral (somatic and autonomic) nervous system. Cholinergic signaling. The structure of cholinergic synapses and the mechanism of transmission of nerve impulses. Acetylcholine release mechanism and regulation. Molecular structure and heterogeneity of cholinergic receptors: muscarinic (M1–M4) and nicotinic (Nm, Hn) cholinergic receptors. Localization and effects of physiological and pharmacological stimulation.

2. Cholinergic agonists (cholinomimetic agents). M-cholinomimetics (pilocarpine, bethanechol): effect on the eye, smooth muscles of internal organs, glandular secretion, cardiovascular and central nervous system; application, side effects. H-cholinomimetics: nicotine, cytisine. Effects of stimulation of H-cholinergic receptors of the carotid sinus zone, chromaffin cells of the adrenal medulla. Nicotinism. The use of nicotinomimetics for smoking control. M, H-cholinomimetics (acetylcholine chloride); pharmacological effects. Anticholinesterase drugs. Reversible cholinesterase inhibitors: neostigmine, pyridostigmine bromide, physostigmine, donepezil, rivastigmine, galantamine. Irreversible cholinesterase inhibitors (organophosphorus compounds: ethylnitrophenylethylphosphonate (armin), insecticides (malathion), chemical warfare agents). Pharmacological effects, side and toxic effects of anticholinesterase drugs; treatment of poisoning: cholinesterase reactivators (pralidoxime mesylate, trimedoxime bromide), anticholinergics (atropine sulfate). Stimulants of the release of acetylcholine (itoprid).

3. Cholinoblocking agents. Agents that inhibit the release of acetylcholine (botulinum toxin A): application, side effects. M-anticholinergics: atropine, hyoscine hydrobromide, ipratropium bromide, propantheline bromide, dicycloverine, tropicamide, pirenzepine, tolterodine, darifenacin. Influence of M-anticholinergics on the eye, smooth muscles of internal organs, glandular secretion, cardiovascular and central nervous system. Comparative characteristics of M-anticholinergics, use, side effects. Help in case of poisoning with M-anticholinergics. Ganglion blockers (M, H-anticholinergics): trimetaphan, hexamethonium benzosulfonate. Pharmacological effects, indications for use, side effects of ganglion blockers. Means that block neuromuscular transmission (M, H-anticholinergics): pipecuronium bromide, atracurium, suxamethonium chloride. Classification, mechanisms of muscle relaxant action, use, side effects, pharmacological antagonists. Central anticholinergics (trihexyphenidyl, biperiden): pharmacological and side effects, application.

TOPIC 6: Adrenergic drugs. Drugs affecting the afferent transmission of nervous impulses.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Adrenergic signaling. The structure of adrenergic synapses and the mechanism of transmission of nerve impulses. Regulation of the release of mediators and their metabolism. Heterogeneity of adrenergic receptors (α and β-adrenergic receptors): localization, effects of physiological and pharmacological stimulation.

2. Adrenergic agonists (adrenomimetics). α-adrenergic agonists: α1-adrenergic agonists – phenylephrine; α2-adrenergic agonists – clonidine; α1, α2-adrenergic agonists (relatively selective α2-adrenergic agonists) — xylometazoline, naphazoline. β-adrenergic agonists: β1-adrenergic agonists — dobutamine; β2-adrenergic agonists — salbutamol, salmeterol, terbutaline; β1, β2, β3-adrenergic agonists (non-selective) — isoprenaline. α- and β-adrenomimetics: epinephrine, norepinephrine, dopamine. Pharmacological effects of adrenergic agonists of various groups, use, side and toxic effects.

3. Adrenergic blocking agents. α-blockers: α1-blockers — doxazosin, prazosin, tamsulosin; α2-blockers — yohimbine; α1, α2-blockers (non-selective) — phentolamine, dihydroergotamine. β-blockers: β1, β2, — adrenergic blockers (non-selective) — propranolol, nadolol, sotalol, pindolol, timolol; β1-blockers (cardioselective) — metoprolol, betaxolol, acebutolol, atenolol, nebivolol. α- and β-blockers: carvedilol, labetalol. Pharmacodynamics and pharmacokinetics of adrenergic blockers of various groups, use, side and toxic effects. Selection criteria for β-blockers: selectivity, intrinsic sympathomimetic activity, additional vasodilating activity, duration of action, effect on lipid and carbohydrate metabolism. Presynaptic agents. Sympathomimetics (ephedrine) and sympatholytics (guanethidine, reserpine); pharmacological effects, application, side effects.

4. Drugs affecting the afferent transmission of nerve impulses. Local anesthetics: procaine, lidocaine, bupivacaine, articaine, ropivacaine, benzocaine. Classification, mechanism of action, application for different types of anesthesia (infiltration, conduction, surface). Toxic effect of local anesthetics, measures to prevent it. Astringents (tannin, zinc oxide), enveloping (mucus, sucralfate), adsorbing (activated carbon), irritating (menthol, ammonia solution) agents; principles of action, application.

TOPIC 7. Drugs affecting the central nervous system. Drugs for general anesthesia. ethanol. anti-carbon drugs. drugs for treatment of parkinsonism and reduction of spastity.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Definition of anesthesia. Inhalation and non-inhalation anesthesia. Stages of anesthesia. Determinants of the depth of anesthesia, the rate of development and recovery from anesthesia. Requirements for an ideal drug for general anes-

thesia (DGA). The concept of the activity of inhaled DGA (minimum alveolar concentration). Molecular and neurophysiological mechanisms of DGA action. Inhaled DGA: halothane, isoflurane, sevoflurane, dinitrogen oxide (nitrous oxide). Non-inhalation DGA: sodium thiopental, propofol, ketamine. Clinical use of DGA, types of anesthesia, concept of the breadth of the narcotic action. Side effects of anesthetics.

2. Ethanol. Local and resorptive action of ethyl alcohol, use in medicine. Acute ethyl alcohol poisoning, medical attention. Chronic poisoning with ethyl alcohol (alcoholism). Principles and remedies for alcoholism treatment: disulfiram, apomorphine.

3. Anticonvulsants (antiepileptic) drugs: valproic acid, carbamazepine, phenytoin, lamotrigine, phenobarbital, ethosuximide, clonazepam, gabapentin. Mechanisms of anticonvulsant action, criteria for the choice of agents for arresting seizures, side and toxic effects.

4. Antiparkinsonian drugs: levodopa, amantadine, selegiline, trihexyphenidil, pramipexole. The use of DOPA-decarboxylase inhibitors (carbidopa, benserazide) and COMT inhibitors (entacapone) to reduce side effects and increase the effectiveness of levodopa. Principles of drug correction of extrapyramidal disorders. Pharmacological effects of antiparkinsonian drugs, pharmacokinetics, side effects.

5. Drugs for reducing spasticity — centrally acting muscle relaxants (baclofen, tizanidine, tolperisone): mechanisms of action, side and toxic effects.

TOPIC 8. Analgesics.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Modern ideas about the systems of perception and regulation of pain in the body. The nociceptive system is a specific and non-specific pathway for conducting a pain impulse; pain mediators. Antinociceptive system, mediators of the antinociceptive system and their precursors, pain relief mechanisms. Opiate receptors — localization, heterogeneity (□-, □-, □-, □-), activation effects, endogenous ligands.

2. Narcotic analgesics (opioids) and their antagonists. Opioid receptor agonists (morphine, codeine, trimeperidine, fentanyl, methadone). Antagonist agonists (pentazocine) and opioid receptor partial agonists (buprenorphine). Opioid antagonists (naloxone, naltrexone). Molecular and cellular mechanisms of action, main pharmacological effects, pharmacokinetics of opioids. Characteristics of the main groups of opioids. Areas of medical use of narcotic analgesics, side and toxic effects. Acute opioid poisoning and the principles of its pharmacotherapy. Chronic toxicity and drug dependence. Principles of pharmacotherapy for drug addiction and withdrawal symptoms. Interaction of opioids with other drugs.

3. Non-narcotic analgesics (nefopam, paracetamol, ibuprofen, ketorolac, acetylsalicylic acid, combined agents) and mixed-type analgesics (tramadol): mechanisms of analgesic action, other pharmacological effects, use, side effects,

contraindications. Comparative characteristics of non-narcotic and narcotic analgesics, selection criteria for the relief of pain syndromes of various origins. The concept of neuroleptanalgesia.

4. Drugs used for neuropathic pain syndromes.

5. Principles of pharmacotherapy for migraine. Agents for the relief of acute attacks: acetylsalicylic acid, paracetamol, 5HT1 receptor agonists (sumatriptan), ergot alkaloids (ergotamine), antiemetics (metoclopramide). Means for the prevention of migraine attacks: pizotifen, β-blockers, tricyclic antidepressants, valproic acid, calcium channel blockers, cyproheptadine.

6. Agents for the treatment of acute and chronic pain syndromes (adjuvants): clonidine, amitriptyline, carbamazepine, ketamine, benzofurocaine, baclofen, diphenhydramine, phenytoin, valproic acid. Mechanisms of analgesic action, the use of drugs for the treatment of pain syndromes.

TOPIC 9. Anxiolytic and sedative-hypnogenic drugs. Antipsychotics.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Anxiolytic, sedative and hypnogenic effects — essence, similarities and differences. Chemical classes and pharmacological groups of drugs used for psychoneurotic disorders and sleep disorders. Anxiolytics: alprazolam, diazepam, oxazepam, chlordiazepoxide, buspirone hydrochloride. Sedatives (sedatives): phytopreparations of valerian, motherwort; bromides (sodium bromide); combined funds (Corvalol). Hypnogenic (hypnotic) drugs: triazolam, nitrazepam, zaleplon, zopiclone, zolpidem, chloral hydrate. Drugs for correcting circadian rhythm disorders (melatonin). Neurophysiological and molecular mechanisms of action of anxiolytic and sedative-hypnogenic drugs, pharmacological effects, pharmacokinetics, side and toxic effects. Fields of application of anxiolytics and sedative-hypnogenic drugs, restrictions on their use. Acute benzodiazepine poisoning, principles of pharmacotherapy, benzodiazepine antagonist (flumazenil). The hypnotic effect of blockers of central H1-histamine receptors (diphenhydramine, promethazine).

2. Antipsychotics (neuroleptics): chlorpromazine, flupentixol, haloperidol, droperidol, clozapine, risperidone. Antipsychotics as a special class of psychopharmacological agents. The concept of neuroplegia. Classification of antipsychotics, neurophysiological effects and mechanisms of antipsychotic action, pharmacokinetics, main indications and principles of use, use of depot-injection dosage forms of antipsychotics. Side and toxic effects of neuroleptics (effects on the central nervous system, autonomic functions, endocrine system).

TOPIC 10. Antidepressants, normotimic, nootropic, psychostimulating, analeptic drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Antidepressants (thymoanaleptics). Tricyclic antidepressants (imipramine, amitriptyline). Selective inhibitors of neuronal reuptake of norepinephrine and serotonin (venlafaxine). Selective inhibitors of neuronal serotonin reuptake (fluoxetine, sertraline). Selective norepinephrine reuptake inhibitors (maprotiline, reboxetine). Atypical antidepressants (mirtazapine, mianserin, tianeptine, trazadone). Monoamine oxidase inhibitors (moclobemide). Principles of pharmacotherapy for depressive states, pharmacodynamics (influence on biogenic brain amines, receptor and post-receptor effects) and pharmacokinetics of antidepressants, use and side effects.

2. Normotimic (antimanic) drugs: lithium salts (lithium carbonate), anticonvulsants, antipsychotics, benzodiazepines. Mechanism of action and pharmacokinetics of lithium salts. The use of lithium preparations in medicine: indications, side effects, contraindications. Nootropics: piracetam, vinpocetine, nimodipine, donepezil hydrochloride, memantine. Psychostimulants: caffeine, mesocarb. Analeptic agents: almitrin, doxapram hydrochloride, bemegrid, niketamide, caffeine sodium benzoate. Molecular and neurophysiological mechanisms of action, pharmacological effects, use, side effects, indications and contraindications for the use of nootropic, psychostimulating, analeptic drugs.

TOPIC 11. Drugs affecting the functions of the respiratory organs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Drugs for the treatment of bronchial asthma and relief of bronchospasm: β-adrenergic agonists (salbutamol, salmeterol, formoterol), glucocorticosteroids (beclomethasone, budesonide), inhibitors of the release of allergy mediators (cromoglicic acid, ketotifen), M-cholinergic blockers zafirlukast, montelukast), phosphodiesterase inhibitors (aminophylline, theophylline and its prolonged forms), inhibitors of the action of allergy mediators (fenspiride), immunoglobulin E inhibitors (omalizumab). The choice of drugs for the pharmacotherapy of bronchial asthma, relief and prevention of asthmatic attacks.

2. Respiratory center stimulants: almitrin, doxapram, bemegrid, etymizole, niketamide.

3. Surfactants (colfosceryl palmitate, alpha practant) and stimulants of their synthesis (ambroxol), routes of administration.

4. Expectorants and mucolytic agents: thermopsis preparations, potassium iodide, guaifenesin, ambroxol, acetylcysteine, dornase alfa.

5. Antitussives: dextromethorphan, prenoxdiazine, codeine phosphate, and other codeine-containing drugs.

6. Principles of action of different groups of drugs that affect the functions of the respiratory system, use, side effects.

7. Drugs used in the treatment of pulmonary edema: morphine, furosemide, mannitol, sodium nitroprusside, hexamethonium benzosulfonate, aminophylline, ethyl alcohol. Principles of pharmacotherapy for pulmonary edema.

TOPIC 12. Drugs affecting the functions of the digestive organs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. General characteristics of the means used to correct impaired functions of the digestive system. The main classes of drugs, mechanisms of action, pharmacological and side effects, application.

2. Drugs used to treat stomach and duodenal ulcers. Agents that reduce the activity of acid-peptic factor: antacids and simethicone (aluminum and magnesium hydroxides, sodium bicarbonate, aluminum-magnesium complexes, combined antacids with simethicone and sodium alginate), neutralizing the activity, speed and duration of action of antacids; proton pump blockers (omeprazole, lansoprazole, esomeprazole); blockers of histamine H2-receptors (famotidine, ranitidine); selective M1 anticholinergics (pirenzepine); blockers of gastrin receptors (proglumid). Drugs that have a protective effect on the mucous membrane of the stomach and intestines (gastroprotectors): bismuth tripotassium dicitrate, sucralfate, misoprostol. Drugs s for the eradication of Helicobacter pylori: omeprazole, bismuth preparations, metronidazole, clarithromycin, amoxicillin.

3. Drugs affecting the tone and motility of the gastrointestinal tract. Motility suppressants: anticholinergics (dicycloverine, atropine); antispasmodics of myotropic and mixed action (drotaverine, pinaveria bromide). Antidiarrheals: opiate receptor agonists (loperamide); absorbent and astringent agents. Motility stimulants: cholinomimetics (pyridostigmine bromide, neostigmine), dopamine receptor antagonists (metoclopramide). Laxatives: senna preparations, bisacodyl, magnesium sulfate, lactulose, methylcellulose, vaseline oil. Localization of action and speed of onset of the laxative effect. Indications and contraindications for the use of laxatives.

4. Emetics (apomorphine). Antiemetics: ondansetron, granisetron, metoclopramide, domperidone, promethazine, hyoscine hydrobromide (for sea and air sickness), betahistine (for Meniere's syndrome), nabilon, aprepitant. The choice of antiemetic depending on the cause and mechanism of vomiting.

5. Hepatotropic drugs. Choleretic agents: dehydrocholic acid, osalmide, magnesium sulfate, drotaverine, M-anticholinergics, phytopreparations. Cholelitholytic agents (ursodeoxycholic acid). Hepatoprotectors: betaine, ademetionine, essential.

6. Drugs affecting the function of the pancreas: diluted hydrochloric acid, pancreatin, cholecystokinin, M-anticholinergics. Principles of pharmacotherapy for acute and chronic pancreatitis.

7. Drugs that affect appetite and digestion. Antianorexigenic drugs (increasing appetite): wormwood tincture, cyproheptadine. Anorexigenic drugs: phenylpropanolamine, dexfenfluramine. Limitations and dangers of use, side effects of anorexigenic drugs. Drugs that improve digestion processes: pepsin, pancreatin, tylactase, diluted hydrochloric acid. Drugs for the treatment of obesity: anorexigenic drugs, oral hypoglycemic drugs (metformin, acarbose), intestinal lipase inhibitors (orlistat), agents that create a satiety effect (methylcellulose).

TOPIC 13. Drugs affecting the cardiovascular system.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Antihypertensive drugs. The main groups of antihypertensive drugs: diuretics (hydrochlorothiazide, indapamide, furosemide, spironolactone, triamterene); inhibitors of the renin-angiotensin-aldosterone system (RAAS) (aliskiren, captopril, enalapril, lisinopril, omapatrilat, losartan, valsartan); β-blockers (propranolol, metoprolol, atenolol, bisoprolol, nebivolol) and mixed α- and β-blockers (labetalol, carvedilol); calcium channel blockers (nifedipine and its prolonged forms, amlodipine, verapamil, diltiazem); additional agents: centrally acting (clonidine, methyldopa, moxonidine, rilmenidine), α1-blockers (doxazosin), vasodilators (diazoxide, sodium nitroprusside, magnesium sulfate, bendazole), sympatholytics (guanethidine, reserpine). Mechanisms of action, pharmacokinetics, side effects of antihypertensive drugs, principles of their combination. Principles of pharmacotherapy of arterial hypertension and criteria for the choice of antihypertensive drugs. Differences in pharmacotherapeutic approaches to the treatment of arterial hypertension and relief of hypertensive crises.

2. Antianginal and hypolipidemic agents. The main groups of antianginal drugs: beta-blockers: propranolol, atenolol, metoprolol; calcium channel blockers: diltiazem, verapamil, nifedipine and its prolonged forms, amlodipine; organic nitrates and nitrate-like agents: nitroglycerin, isosorbide mononitrate, isosorbide dinitrate, molsidomin; other antianginal agents: nicorandil, mildronate, ivabradine. Mechanisms of action, pharmacokinetics, side effects of antianginal drugs. The phenomenon of «stealing» the myocardium. Withdrawal syndrome. Tolerance to nitrates. Modern strategy of pharmacotherapy for ischemic heart disease (IHD), comparative characteristics of antianginal drugs in terms of their influence on the course and prognosis of IHD, choice of drugs for relief and prevention of an attack of angina pectoris.

3. Lipid-lowering agents: statins (atorvastatin), fibrates (gemfibrozil), bile acid sequestrants (cholestyramine), nicotinic acid. Principles of action, clinical application, comparative characteristics of lipid-lowering drugs in terms of effectiveness.

TOPIC 14. Drugs for the treatment of heart failure.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Cardiotonic drugs. Essential medicines for the treatment of heart failure (HF): RAAS inhibitors (captopril, enalapril, lisinopril, losartan); beta-blockers (propranolol, metoprolol, carvedilol); diuretics (hydrochlorothiazide, indapamide, furosemide, spironolactone, eplerenone); inotropic drugs (cardiotonic drugs): cardiac glycosides (CG): digoxin, digitoxin; non-glycoside inotropic agents: dopamine, dobutamine, milrinone, levosimendan. Principles of HF pharmacotherapy. Mechanisms of action of agents for the treatment of heart failure, selection criteria. Structural determinants of the pharmacological activity

of SG, effects on the contractile and bioelectric functions of the heart. The essence of the therapeutic action of SG in cardiac decompensation. Application, side and toxic effects of SG, contraindications to their appointment. Possible causes of digitalis intoxication, principles of their prevention and treatment.

TOPIC 15. Antiarrhythmics.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Antiarrhythmic drugs (AAD) used for tachyarrhythmias: quinidine, procainamide, lidocaine, phenytoin, propafenone; propranolol, metoprolol, esmolol, sotalol; amiodarone, bretylium tosylate; verapamil; adenosine. AAD used for bradyarrhythmias: M-anticholinergics, β-adrenergic agonists. Classification of AAD by electrophysiological and pharmacological action on the myocardium. The main mechanisms of antiarrhythmic action. Comparative characteristics of AAD: influence on the basic functions of the heart (automatism, excitability, conductivity, contractility), electrocardiogram, blood pressure, stroke volume, neurovegetative innervation. Indications and contraindications for the use of AAD, selection criteria. Arrhythmogenic and other side effects of AAD.

TOPIC 16. Diuretics. Drugs affecting tone and contractive activity myometry.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Diuretics. Thiazide and thiazide-like: hydrochlorothiazide, chlorthalidone, indapamide; loop (furosemide); potassium-sparing (triamterene, spironolactone, eplerenone); osmotic (mannitol); carbonic anhydrase inhibitors (acetazolamide); watercolors (demeclocycline). Mechanisms of diuretic action, speed of onset and duration of effect. Effect of diuretics on ionic balance. Criteria for choosing diuretics, use, side effects.

2. Preparations of female sex hormones. Estrogen drugs: estradiol, ethinylestradiol, hexestrol, estrogen receptor modulators (raloxifene). Progestogen drugs: progesterone, dydrogesterone. Chemical structure and physiological significance of estrogens and gestagens, therapeutic use. Hormone replacement therapy for menopausal disorders. Antagonists of estrogens and progestins (tamoxifen, mifepristone), medical use. Contraceptives (contraceptives): monophasic (Marvelon), biphasic (Anteovin), three-phase (Tri-regol), norethisterone, levonorgestrel; principles of action, side effects.

3. Drugs that affect the tone and contractile function of the myometrium. Drugs for enhancing labor (oxytocin, dinoprost); means for stopping uterine bleeding (ergot preparations, oxytocin), tocolytic agents (hexoprenaline): mechanisms of action, pharmacological effects, application.

TOPIC 17. Drugs affecting the blood system.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Drugs affecting hematopoiesis. Drugs used for anemia: iron sulfate and other salts of ferrous iron, iron (III) hydroxide sucrose complex, cyanocobalamin, folic acid, epoetin alpha and beta, anti-lymphocytic globulin. Causes of anemia, principles of pharmacotherapy of anemia. Poisoning with iron preparations, antidotes (deferoxamine).

2. Leukopoiesis stimulating agents: molgramostim, filgrastim, lenograstim, methyluracil. Causes of leukopenia, principles of pharmacotherapy and prevention of leukopenia.

3. Drugs that inhibit hematopoiesis (antiblastoma drugs).

4. Drugs affecting hemostasis. Classification of agents regulating hemostasis, principles and mechanisms of action, main indications for use, complications. Principles of treatment and prevention of acute arterial and venous thrombosis. Antiplatelet agents (antiplatelet agents): acetylsalicylic acid, pentoxifylline, epoprostenol, ticlopidine, clopidogrel, abciximab, eptifibatid, tirofiban. Anticoagulants: heparin, calcium nadroparin, antithrombin III, dabigatran etexilate, rivaroxaban, warfarin. Thrombolytic agents: fibrinolysin, streptokinase, alteplase. Hemostatic agents: eltrombopag, ethamsylate, menadione, calcium salts, tranexamic acid, coagulation factor VIII, coagulation factor IX; fibrinogen, thrombin.

TOPIC 18. Drugs regulating tissue metabolism. Hormonal and antihormonal drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Hormones, their synthetic analogues, substitutes and antagonists, sources of production, principles of biological standardization and dosage, classification.

2. Preparations of hormones of the hypothalamus, pituitary gland, pineal gland. Hypothalamic hormone preparations: octreotide, gonadorelin, goserelin, protirelin. Influence of hypothalamic hormones on the secretion of hormones of the anterior pituitary gland, application in medicine.

3. Preparations of hormones of the anterior pituitary gland: somatropin, tetracosactide, gonadotropins (follitropin alpha and beta, urofollitropin, chorionic gonadotropin, lutropin alpha, menotropins), thyrotropin alpha. Influence of hormones of the anterior pituitary gland on the endocrine glands, use in medicine. Antagonists of hormones of the anterior pituitary gland: antagonist of growth hormone receptors (pegvisomant), inhibitor of prolactin secretion (bromocriptine), inhibitor of the release of gonadotropic hormones (danazol). Preparations of hormones of the posterior lobe of the pituitary gland: oxytocin, terlipressin, desmopressin. The use of oxytocin preparations in obstetrics. Antidiuretic properties of vasopressin, effect on intestinal and vascular tone. The use of desmopressin and terlipressin. Preparations of pineal gland hormones (melatonin): pharmacological activity, use in medicine.

4. Thyroid and antithyroid drugs. Thyroid hormone preparations: sodium levothyroxine (T4), liothyronine (T3), their therapeutic use. Antithyroid drugs

(thiamazole, propylthiouracil, iodides, radioactive iodine, β-blockers), mechanisms of action, use, side effects and complications.

5. Preparations of the hormone of the parathyroid glands (teriparatide), the effect on the exchange of phosphorus and calcium, use.

6. Pancreatic hormones and synthetic antidiabetic agents. The effect of insulin on metabolism. Insulin preparations of short and prolonged action (insulin soluble, insulin-isophane, insulin-zinc crystalline suspension, insulin-zinc combined suspension, biphasic insulin), sources of production. Dosing principles and routes of administration of insulin preparations, complications of insulin therapy. Oral hypoglycemic agents (glibenclamide, glycidone, metformin), mechanism of action, indications for use, side effects. Other antidiabetic agents: increasing the sensitivity of tissues to insulin (pioglitazone), stimulating the release of insulin (repaglinide), inhibiting the absorption of carbohydrates from the intestine (acarbose), inhibitors of dipepdyl peptidase-4 (vildagliptin). Insulin antagonists (glucagon, epinephrine, glucocorticosteroids (GCS)), mechanisms of action, application.

7. Adrenal cortex hormone preparations. GCS: hydrocortisone, methylprednisolone, prednisolone, triamcinolone, dexamethasone, betamethasone, fluocinolone acetonide. The effect of GCS on the metabolism in the body. Anti-inflammatory and anti-allergic properties of GCS, therapeutic use, side effects. Synthetic corticosteroids for topical use. Mineralocorticoids: deoxycortone, fludrocortisone. Biological action and use of mineralocorticoids. Inhibitors of the synthesis of corticosteroids (aminoglutethimide).

8. Preparations of male sex hormones, anabolic steroids. Androgenic drugs (testosterone and its esters): pharmacological activity, use, side effects. Antiandrogenic drugs (flutamide): use, side effects.

9. Anabolic steroids (nandrolone): the effect of anabolic steroids on metabolic processes, use, side effects.

10. Hormonal regulators of mineral homeostasis and other drugs that affect bone metabolism.Parathyroid (teriparatide) and antiparathyroid (calcitonin, paricalcitol) drugs; bisphosphonates (alendronic acid), vitamin D and analogs (alfacalcidol): mechanism of action, use, side effects.

TOPIC 19. Anti-inflammatory and anti-antidual drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. GCS: prednisolone, methylprednisolone, triamcinolone, dexamethasone, betamethasone. Mechanisms of action, basic schemes for the use of corticosteroids, side effects of corticosteroids and ways to prevent them. Non-steroidal anti-inflammatory drugs (NSAIDs): acetylsalicylic acid, diclofenac, ibuprofen, naproxen, indomethacin, etodolac, nabumetone, meloxicam, celecoxib, etoricoxib. Mechanisms of anti-inflammatory action (influence on inflammatory mediators and cells, processes of prostaglandin synthesis (COX-1 and COX-2), monoamines, kinins, fibroblast proliferation, synthesis of acidic mucopolysaccharides,

NF-kB transcription factor, cartilage tissue metabolism), other pharmacological effects of NSAIDs ... Indications and contraindications for the use of NSAIDs, side effects, their prevention.

2. Anti-gout drugs. Inhibitors of uric acid synthesis (allopurinol, febuxostat), uricosuric agents (sulfinpyrazone, probenecid); drugs used for acute attacks of gout: NSAIDs, GCS, colchicine. Mechanisms of action, application, side effects of anti-gout drugs.

TOPIC 19. Anti-allergic drugs. immunomodulators. vitamins and vitamin-like agents. Salts of alkaline and alkaline earth metals.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Agents used for immediate allergic reactions. Antihistamines (blockers of H1-histamine receptors): diphenhydramine, clemastine, loratadine, cetirizine, cyproheptadine. Mast cell membrane stabilizers (cromoglycic acid). GCS: prednisolone, methylprednisolone, triamcinolone, dexamethasone, betamethasone. Leukotriene receptor antagonists (zafirlukast, montelukast). Mechanisms of action of antiallergic drugs, comparative characteristics, indications for use, side effects.

2. Drugs used for anaphylactic shock (epinephrine, GCS, dopamine, salbutamol, antihistamines): principles of action, routes of administration.

3. Drugs used for delayed-type allergic reactions. Basic antirheumatic drugs: auranofin, penicillamine, chloroquine, sulfosalazine; immunosuppressants (cyclosporin, tacrolimus, anti-lymphocytic immunoglobulins, monoclonal antibodies - basiliximab); cytotoxic agents - methotrexate.

4. Immunomodulators. Immunoregulatory peptides (interferon gamma-1b and other interferons); interferonogens (tilorone, arbidol); thymus preparations (thymogen): mechanisms of action, use in medicine. Immunosuppressive properties of cytostatic agents.

5. Vitamins and vitamin-like products. Classification, sources of production, pharmacodynamics of vitamins, indications for use and side effects, features of action and comparative characteristics. Causes of hypovitaminosis, their prevention. Water-soluble vitamins: thiamine, riboflavin, calcium pantothenate, folic acid, niacin, pyridoxine, cyanocobalamin, ascorbic acid, rutin, quercetin. Fat-soluble vitamins: retinol, ergocalciferol, alfacalcidol, phytomenadione, tocopherol. Hypervitaminosis in the treatment of retinol and ergocalciferol. Vitamin-like compounds: choline chloride, inosine. Multivitamin and vitamin-mineral complexes. Antivitamins concept.

6. Salts of alkali and alkaline earth metals: sodium chloride, potassium chloride, calcium chloride, magnesium sulfate. Isotonic, hypertonic and hypotonic sodium chloride solutions, application. The value of potassium ions for the work of the nervous and muscular systems, participation in the transmission of nervous excitement; regulation of potassium metabolism; the use of potassium preparations. Influence of calcium ions on the central nervous system, cardiovascular sys-

tem, cell permeability; regulation of calcium metabolism; the use of calcium and magnesium preparations. Antagonism between calcium and magnesium ions.

TOPIC 20. Chemotherapy drugs. Concept of chemotherapy. principles of action of antibacterial agents.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Modern sources of production and promising directions for the creation of antimicrobial agents. Criteria and principles for rational chemotherapy of infections. Principles of combined antibiotic therapy. Possible reasons for the ineffectiveness of antimicrobial therapy. Principles for the classification of antibiotics. The main mechanisms of antibiotic action. Side effects and complications of antibiotic therapy, their prevention and treatment. Antibiotic resistance of microorganisms; mechanisms and ways to overcome it.

2. Antibiotics. Beta-Lactam and other antibiotics that inhibit cell wall synthesis. Penicillins: benzylpenicillin (sodium and potassium salts), benzathine benzylpenicillin (bicillin-1); phenoxymethylpenicillin, oxacillin, amoxicillin, carbenicillin, piperacillin, pivmecilinam; combined preparations of penicillins with β-lactamase inhibitors — clavulanic acid, sulbactam, tazobactam. Cephalosporins and cefamycins: cefazolin, cefuroxime, cefoxitin, cefotaxime, ceftazidime, ceftriaxone, cefepime. Classification of cephalosporins by generations (I-IV), spectrum of antimicrobial activity, resistance to β-lactamases, routes of administration. Carbapenems (imipenem, meropenem, ertapenem). Monobactams (aztreones). Glycopeptides (vancomycin, teicoplanin).

3. Antibiotics that disrupt the permeability of the cytoplasmic membrane. Polypeptides (polymyxins B, M). Polyenes (nystatin, amphotericin B).

4. Antibiotics that inhibit the synthesis of nucleic acids. Ansamycins (rifampicin).

5. Antibiotics that inhibit protein synthesis. Aminoglycosides (aminocyclitols) (streptomycin, gentamicin, amikacin). Tetracyclines (tetracycline, doxycycline). Macrolides and azalides (erythromycin, clarithromycin, azithromycin, spiramycin). Amphenicol (chloramphenicol). Lincosamides (clindamycin). Steroid antibiotics (fusidic acid). Oxazolidinones (linezolid). Streptogramins (quinupristin / dalfopristin). Pharmacodynamics, spectrum of antibacterial action of antibiotics of various groups, routes of administration, principles of dosing, side and toxic effects, contraindications to the appointment. Principles of combined antibiotic therapy.

TOPIC 21. Synthetic anti-microbial agents.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Sulfanilamide drugs: sulfadimidine, sulfadiazine, sulfadimethoxine, sulfalene, phthalylsulfathiazole, sulfacetamide, combinations of sulfonamides with trimethoprim (co-trimoxazole).

2. Oxyquinolines (nitroxoline). Nitrofurans: nitrofurantoin, furazolidone. Quinolones and fluoroquinolones: nalidixic acid, ciprofloxacin, ofloxacin, levofloxacin. Nitroimidazoles (metronidazole). Pharmacodynamics of synthetic antimicrobial agents, spectrum of antimicrobial action, application, side effects and their prevention.

TOPIC 22. Antimycobacterial, antiviral, antimycosis agents.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Anti-tuberculosis drugs: isoniazid, rifampicin, pyrazinamide, ethambutol, streptomycin, rifabutin, cycloserine, kanamycin. Basic and reserve funds for the treatment of tuberculosis. Principles of pharmacotherapy for tuberculosis, the concept of chemoprophylaxis. Antileprosy agents (dapsone, clofazimine, rifampicin).

2. Antiviral agents. Anti-influenza drugs: rimantadine, oseltamivir. Antiherpetic drugs: acyclovir, idoxuridine, foscarnet. Drugs for the treatment of HIV infection: maraviroc, zidovudine, nevirapine, raltegravir, saquinavir, enfuvirtide. Anti-cytomegalovirus drugs (ganciclovir). Drugs for the treatment of respiratory syncytial infection: ribavirin, palivizumab. Interferons (interferon alpha, interferon alpha-2a, interferon alpha-2b, interferon beta, interferon gamma-1b) and interferonogens (tilorone, arbidol). Mechanisms of action, principles of application, side and toxic effects of antiviral agents.

3. Antimycotic agents. Amphotericin B, nystatin; griseofulvin, ketoconazole, clotrimazole, fluconazole, itraconazole. terbinafine. Pharmacodynamics, spectrum of antifungal action, indications for use, side and toxic effects of antimycotics.

TOPIC 23. Antiprotosous and antiparasitic agents. antiseptic and disinfectants.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Antimalarials: chloroquine, mefloquine, quinine, pyrimethamine, primaquine. Anti-amebic drugs: metronidazole, quiniofon, doxycycline, emetine, chloroquine. Drugs used for trichomoniasis: tinidazole, metronidazole, trichomonacid. Drugs used for giardiasis (giardiasis): metronidazole, tinidazole, mepacrine, furazolidone. Drugs used for toxoplasmosis: pyrimethamine in combination with sulfonamides (sulfadiazine, sulfadimidine) and antibiotics (clindamycin, azithromycin). Drugs used for leishmaniasis: sodium stibogluconate, pentamidine isethionate, mepacrine. Drugs used in pneumocystosis: co-trimoxazole, pentamidine isethionate (inhalation), atovaquone. Principles of chemotherapy for protozoal infections, mechanisms of action of antiprotozoal drugs, application, side effects. The concept of individual and public chemoprophylaxis of malaria.

2. Antiparasitic (anthelmintic) agents: mebendazole, pyrantel, albendazole, piperazine adipate, levamisole, praziquantel, niclosamide. Mechanisms of action, prin-

ciples of application, side effects of antiparasitic agents. Means used for intestinal nematodes, cestodoses and trematodes, their properties, application features, side effects. General characteristics of the funds used for extraintestinal helminthiasis.

3. Antiseptic and disinfectants. The concept of antiseptics and disinfection. The difference between antiseptic and other antibacterial agents. Requirements for antiseptics. Conditions that determine the antimicrobial activity of antiseptics, mechanisms of action. The main groups of antiseptic agents: detergents: N - cetylpyridinium chloride, cerigel; metal compounds: zinc sulfate, copper sulfate; halogenated compounds: chloramine B, alcohol iodine solution; acids and alkalis: boric acid, aqueous ammonia solution; aromatic antiseptics: pure phenol, resorcinol, polycresulene, triclosan, ambazon, biclotymol, hexetidine; aliphatic antiseptics: ethyl alcohol, formaldehyde solution; oxidizing agents: potassium permanganate, hydrogen peroxide; derivatives of nitrofuran (furacilin); dyes: methylene blue, brilliant green; biguanides (chlorhexidine); imidazole antiseptics (metronidazole); quaternary ammonium compounds: benzalkonium chloride, miramistin. Features of the use of certain antiseptics. The principles of treatment of acute poisoning with antiseptics.

TOPIC 24. Antiblastomic drugs.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Principles of chemotherapy for malignant neoplasms.

2. Classification of antiblastoma drugs: alkylating agents (cyclophosphamide, melphalan, busulfan); antimetabolites (methotrexate, fluorouracil, cytarabine, mercaptopurine); anti-mitotic drugs (vincristine, paclitaxel, etoposide, irinotecan); antibiotics (bleomycin, doxorubicin, mitomycin); enzymes (L-asparaginase); platinum preparations (cisplatin). Mechanisms of action of antiblastoma drugs. Features of the spectrum of antitumor action of alkylating agents, antimetabolites, platinum preparations, antibiotics, hormones and their antagonists, enzymes. Complications of tumor chemotherapy, their prevention.

TOPIC 25. Drug interaction. Principles of treatment for acute drug poisoning.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. Co-administration of drugs (polypharmacotherapy or combination therapy). Indications for combination therapy. Types and mechanisms of drug interactions. Possible results of drug interactions. Pharmaceutical and pharmacological incompatibility.

2. Classification of pharmacological substances according to the degree of toxicity and hazard (lists A, B). Toxicokinetics, toxicodynamics. The main mechanisms of toxic action. Principles of drug poisoning treatment. Emergency medical care, depending on the route of entry of substances into the body. The main groups of antidotes: toxicotropic antidotes, toxic-kinetic antidotes, phar-

macological antagonists, immunological antidotes (antitoxic sera). Mechanisms of action of antidote drugs, conditions and restrictions for their use. Prevention of acute drug poisoning.

TOPIC 26. Prescription rules for prescribing medicines in various dosage forms.

Theoretical questions, based on the knowledge of which it is possible to complete the target tasks:

1. State Pharmacopoeia, its content and purpose. International Pharmacopoeia. Pharmacy. Rules for storage and dispensing of medicines. The recipe, its structure. Prescription rules. Peculiarities of prescribing narcotic, poisonous and potent medicines.

2. Solid dosage forms (powders, tablets, dragees, capsules): their characteristics, advantages and disadvantages, prescription rules.

3. Liquid dosage forms. General characteristics and rules for prescribing liquid dosage forms. Dosing. Solutions for external use and oral administration. Solvents. Official solutions. Suspensions. Liquid dosage forms obtained on the basis of herbal medicinal raw materials: infusions, decoctions, collections, galenic and novogalenic preparations, mucus, emulsions, liniment. Potions. General characteristics and requirements for dosage forms for injection. Rules for prescribing injectable forms of factory and pharmacy production.

4. Soft dosage forms (ointments, pastes, suppositories): manufacturing and prescribing rules.

5. Special dosage forms — therapeutic systems (oral, transdermal, parenteral); dosage forms for children.

CHAPTER 2

Test Tasks

1. GENERAL PHARMACOLOGY

Choose one correct answer:

1. Examples of prodrug are all, except:
Variants of answer:
a) levodopa;
b) omeprazole;
c) enalapril;
d) indomethacin;
e) sulfasalazine.

2. Which of the following is prodrug?
Variants of answer:
a) enalapril;
b) dipivefrine;
c) mercaptopurine;
d) phenytoin;
e) linezolid.

3. Drug which causes fetal renal anomalies:
Variants of answer:
a) enalapril;
b) furosemide;
c) amlodipine;
d) phenytoin;
e) amoxicillin.

4. Action of angiotensin II:
Variants of answer:
a) systemic vasoconstriction;
b) systemic vasodilatation;
c) renal vasodilatation;
d) reabsorption of Na, K in proximal renal tubule, water reabsorption;
e) reabsorption of Ca, Cl in proximal renal tubule, water reabsorption.

5. Which is a prodrug?
Variants of answer:
a) enalapril;
b) clonidine;
c) salmeterol;
d) acetazolamide;
e) captopril.

6. Which of the following drugs would be removed by dialysis?
Variants of answer:
a) digoxin;
b) salicylates;
c) amiodarone;
d) organophosphates;
e) bisoprolol.

7. One of the following is a prodrug:
Variants of answer:
a) enalapril;
b) neostigmine;
c) esmolol;
d) captopril;
e) lisimopril.

8. Which of the following drugs has covalent interaction with its target?
Variants of answer:
a) aspirin;
b) proserine;
c) nitric oxide;
d) bosentan;
e) paracetamol.

9. Free water clearance decreased by:
Variants of answer:
a) vincristine;
b) vinblastine;
c) chlorpropamide;
d) furosemide;
e) lidocain.

10. Which drug has a wide therapeutic index?
Variants of answer:
a) digoxin;
b) lithium;
c) phenytoin;
d) penicillin;
e) digoxin.

11. Drugs causing hyperglycemia:
Variants of answer:
a) beta blockers;
b) glucocorticoids;

c) cardiac glycosides;
d) indomethacin;
e) aspirin.

12. All of the following drugs can cross placenta, except:
Variants of answer:
a) phenytoin;
b) diazepam;
c) morphine;
d) heparin;
e) amitriptilin.

13. Drugs given by IV route:
Variants of answer:
a) heparin;
b) pantoprazole;
c) ranitidine;
d) sumatriptan;
e) neomycin.

14. Drugs which cause malformation in the fetus include:
Variants of answer:
a) heparin;
b) warfarin;
c) valproic acid;
d) steroids;
e) acetominophene.

15. All are nephrotoxic, except:
Variants of answer:
a) lithium;
b) gentamicin;
c) chlorpromazine;
d) cephalosporins;
e) amikacin.

16. Which of the following can be given with dose adjustment:
Variants of answer:
a) levodopa + metoclopramide;
b) gentamicin + furosemide;
c) ferrous sulphate + tetracycline;
d) clonidine + chlorpromazine;
e) ampicillin + furosemide.

17. Gout is not caused by which of the following:
Variants of answer:
a) chlorthalidone;
b) sulfinpyrazone;
c) aspirin;
d) pyrazinamide;
e) indapamide.

18. Gynaecomastia is a side effect of all, except:
Variants of answer:
a) digitalis;
b) ketoconazole;
c) rifampicin;
d) spironolactone;
e) methyldopa.

19. Drug causing hirsutism and gynaecomastia:
Variants of answer:
a) spironolactone;
b) rifampicin;
c) penicillin;
d) bumetanide;
e) indapamid.

20. Which of the following is least likely to cause interstitial nephritis on chronic use:
Variants of answer:
a) methicillin;
b) cefalotin;
c) heparin;
d) ampicillin
e) cefaclor

2. NEUROTROPIC DRUGS

Choose one correct answer:

21. Which of the following is not an amide:
Variants of answer:
a) procaine;
b) lidocaine;
c) bupivacaine;
d) mepivacaine;
e) articaine.

22. Local anaesthetics act by inhibiting:

Variants of answer:

a) influx of K+;
b) efflux of K+;
c) influx of Na+;
d) efflux of Na+;
e) infux of Ca 2+.

23. Neostigmine antagonizes nondepolarizing blockade by all of the following mechanisms, except:

Variants of answer:

a) decreasing the breakdown of acetylcholine at the motor end plate;
b) preventing K^+ efflux from the cell;
c) increasing the release of acetylcholine at the motor end plate;
d) depolarization of the motor end plate;
e) preventing Na+ efflux from the cell.

24. Diagnosis of myasthenia gravis is by using:

Variants of answer:

a) edrophonium;
b) neosigmine;
c) succinylcholine;
d) atropine;
e) ipratropium bromide.

25. Drug used for postoperative reversal of muscular paralysis is:

Variants of answer:

a) neostigmine;
b) pyridostigmine;
c) physostigmine;
d) d-tubocurare;
e) galanthamine.

26. Test for myasthenia gravis is:

Variants of answer:

a) succinylcholine;
b) edrophonium;
c) atracurium;
d) d-tubocurarine;
e) atropine.

27. Actions of atropine are all, except:

Variants of answer:

a) bronchoconstriction;

b) tachycardia;
c) mydriasis;
d) CNS stimulation;
e) constipation.

28. Atropine causes:
Variants of answer:
a) decreased cardiac output;
b) heart block;
c) hypertension;
d) miosis;
e) sweating.

29. Atropine-mechanism of action in poisoning:
Variants of answer:
a) reactivation of choline-esterase;
b) acts on central and peripheral postganglionic receptors;
c) acts on central and peripheral cholinergic receptors;
d) acts on peripheral cholinergic receptors only;
e) acts on central cholinergic receptors.

30. All of the following drugs may be used to relieve urinary spasms after urological procedures, except:
Variants of answer:
a) darifenacin;
b) oxybutynin;
c) tolterodine;
d) tiotropium;
e) sibutin.

31. Vecuronium acts on:
Variants of answer:
a) cerebral cortex;
b) myoneural junction;
c) muscle fibres;
d) spinal cord ;
e) liver.

32. Suxamethonium causes:
Variants of answer:
a) jaundice;
b) splenomegaly;
c) atrial fibrillation;
d) muscle fasciculation;
e) liver damage.

33. Fasciculations are caused by:
Variants of answer:
a) vecuronium;
b) suxamethonium;
c) atracurium;
d) pancuronium;
e) pipecuronium.

34. True about pseudocholinesterase:
Variants of answer:
a) present in neuromuscular junction;
b) level is increased in pregnancy;
c) succinylcholine is metabolized;
d) organophosphorus inhibit it;
e) level is increased in men.

35. The action of noncompetitive muscle blockers is affected by:
Variants of answer:
a) hypocalcemia;
b) hyponatremia;
c) hyperthermia;
d) all of the above;
e) hypocloremia.

36. Fasciculations are caused by:
Variants of answer:
a) vecuronium;
b) suxamethonium;
c) atracurium;
d) pancuronium;
e) pipecuronium.

37. Central muscle relaxants act by:
Variants of answer:
a) decreased nerve conduction;
b) inhibits spinal polysynaptic reflexes;
c) block conduction across neuromuscular junction;
d) depression;
e) decreased muscle excitation.

38. Sympathomimetic drugs are useful in the therapy of all of the following conditions, except:
Variants of answer:
a) acute decompensated heart failure;

b) hypotension;
c) erectile dysfunction;
d) none of the above;
e) tachycardia.

39. True about tachyphylaxis is:
Variants of answer:
a) direct sympathemimetic involved;
b) mechanism clearly understood;
c) ephedrine tachyphylaxis reversed with noradrenaline;
d) indirect sympathomimetics involved;
e) direct sympathoblockers involved.

40. True of the following is:
Variants of answer:
a) beta-1 receptors in heart stimulate its contractions;
b) beta-2 receptors in heart stimulate its contractions;
c) beta-3 receptors are present in smooth muscles;
d) alpha-receptors cause preganglionic stimulation;
e) beta-1 receptors are in vessels.

41. Mechanism of action of epinephrine in cardio-pulmonary resuscitation is:
Variants of answer:
a) increase myocardial oxygen demand;
b) increase SA-node activity;
c) respiratory center stimulation;
d) decreased blood flow to epicardium and endocardium;
e) respiratory center blockage.

42. Beta-1 selective agonist is:
Variants of answer:
a) terbutaline;
b) albuterol;
c) dobutamine;
d) isoetharine;
e) isadrin.

43. Which one of the following drugs is not a catecholamine?
Variants of answer:
a) epinephrine;
b) norepinephrine;
c) dopamine;
d) phenylephrine;
e) mezaton.

44. In treatment of cardiac failure, dobutamine acts by all the following mechanisms, except:

Variants of answer:

a) α-adrenergic receptors agonism;
b) β-adrenergic receptors agonism;
c) dopamine receptor agonism;
d) increasing force of contraction;
e) increasing heart rate.

45. Drug of choice for cardiogenic shock:

Variants of answer:

a) dopamine;
b) propranolol;
c) digitalis;
d) milrinone;
e) acebutalol.

46. Adrenaline causes vasoconstriction in all of the following vessels, except:

Variants of answer:

a) intestinal
b) cerebral;
c) cutaneous;
d) renal;
e) stomach.

47. Which of the following is a drug of choice for cardiogenic shock?

Variants of answer:

a) dopamine;
b) adrenaline;
c) mephenteramine;
d) digoxin;
e) digitoxin.

48. All are endogenous catecholamines, except:

Variants of answer:

a) epinephrine;
b) norepinephrine;
c) dopamine;
d) dobutamine;
e) adrenaline.

49. Selective alpha-1a-adrenoblocker is:

Variants of answer:

a) prazosin;

b) terazosin;
c) tamsulosin;
d) indoramine;
e) izadrin.

50. All of the following can be associated with beta-2 agonists treatment, except:

Variants of answer:
a) hyperkalemia;
b) hyperglycemia;
c) detrusor relaxation;
d) relaxation of gut and bronchial muscles;
e) uterus relaxation.

51. All of the following are side effects of beta-2 agonists in preterm labour, except:

Variants of answer:
a) increasing tone of uterus;
b) tremor;
c) tachycardia;
d) hyperkalemia;
e) relaxation of gut and bronchial muscles.

52. Contraindication of β-blockers is:

Variants of answer:
a) bronchial asthma;
b) CHF;
c) hypertension;
d) arrhythmias;
e) chronic heart failure.

53. Beta-blockers are used in all, except:

Variants of answer:
a) hypertension;
b) thyrotoxicosis;
c) variant angina;
d) all of the above;
e) tachiarrhythmias.

54. Timolol can be given in all, except:

Variants of answer:
a) myocardial infarction;
b) bronchial asthma;
c) peptic ulcer;

d) CHF;
e) angina pectoris.

55. All are true about beta-blockers, except:
Variants of answer:
a) atenolol is longer acting than metoprolol;
b) labetalol has both alpha and beta blocking action;
c) carvedilol has alpha agonistic and selective beta-1 blocking action;
d) nadolol has longest half-life;
e) carvedilol has alpha blocking and selective beta-1 blocking action.

56. All of the following are nonselective beta-blockers with additional action, except:
Variants of answer:
a) carvedilol;
b) betaxolol;
c) propranolol;
d) labetalol;
e) proxodolol.

57. All of the following are selective beta-1 blockers, except:
Variants of answer:
a) atenolol;
b) metoprolol;
c) labetalol;
d) betaxolol;
e) propranolol.

58. Beta-blocker with peripheral vasodilator action is:
Variants of answer:
a) carvedilol;
b) propranolol;
c) atenolol;
d) acebutolol;
e) celiprolol.

59. Beta-blocker that can be used in renal failure is all, except:
Variants of answer:
a) propranolol;
b) pindolol;
c) sotalol;
d) oxyprenolol;
e) celiprolol.

60. All the following are selective beta-blockers, except:
Variants of answer:
a) atenolol;
b) esmolol;
c) bisoprolol;
d) celiprolol;
e) metoprolol.

61. Which of the following has the shortest plasma half-life?
Variants of answer:
a) propranolol;
b) esmolol;
c) timolol;
d) atenolol;
e) metoprolol.

62. Propranolol is indicated in all of the following conditions, except:
Variants of answer:
a) thyrotoxicosis;
b) variant angina;
c) migraine;
d) hypertension;
e) tachiarrythmia.

63. Beta-blocker acts by:
Variants of answer:
a) ↓ cardiac output;
b) ↓ HR;
c) ↓ BP;
d) all;
e) ↓ conduction.

64. In a person with HR = 120, rate is reduced by:
Variants of answer:
a) propranolol;
b) phentolamine;
c) phenoxybenzamine;
d) prazosin;
e) nitroglycerin.

65. Property making cardioselective beta-blockers desirable is:
Variants of answer:
a) less bronchoconstriction;
b) adverse effect on lipid profile;

c) cause glucose intolerance;
d) may be used in Raynaud's disease;
e) less liable to impair exercise capacity.

66. Tolerance occurs to all side effects of morphine, except:
Variants of answer:
a) sedation;
b) constipation;
c) pain relieving;
d) euphoric effect;
e) relaxation.

67. The drug not used for analgesia in a head injury patient is:
Variants of answer:
a) morphine;
b) NSAID;
c) rofecoxib;
d) acetaminophen;
e) paracetamol.

68. Buprenorphine is:
Variants of answer:
a) partial agonist;
b) pure antagonist;
c) agonist-antagonist;
d) none of the above;
e) pure agonist.

69. Sufentanyl is a/an:
Variants of answer:
a) analgesic;
b) antibiotic;
c) anticholinergic;
d) newer antihistaminic;
e) anticoagulant.

70. Buprenorphine is partial agonist of:
Variants of answer:
a) mu receptor;
b) delta receptor;
c) kappa receptor;
d) sigma receptor;
e) alfa receptor.

71. The mu (μ) opioid receptor is responsible for the following effects all, except:

Variants of answer:

a) miosis;
b) bradycardia;
c) hypothermia;
d) bronchodilation;
e) sedative effect.

72. Which of the following actions is ascribed to delta type of opioid receptors?

Variants of answer:

a) supraspinal analgesia;
b) respiratory depression;
c) euphoria;
d) reduced intestinal motility;
e) myosis.

73. Which analgesic is not used in acute myocardial infarction?

Variants of answer:

a) morphine;
b) pentazocine;
c) pethidine;
d) buprenorphine;
e) phenthanyl.

74. Morphine can be used in all the following conditions, except:

Variants of answer:

a) head injury;
b) asthma;
c) hypothyroidism;
d) diabetes;
e) tooth injury.

75. Which of the following is false about pentazocine?

Variants of answer:

a) decreased vomiting and constipation as compared to morphine;
b) risk of addiction is less than that with morphine;
c) risk of addiction is more than that with morphine;
d) it is agonist-antagonist;
e) bioavalaibility is low.

76. Buprenorphine is:

Variants of answer:

a) opioid agonist-antagonist;

b) partial agonist;
c) pure antagonist;
d) partial antagonist;
e) pure agonist.

77. Which is true regarding naltrexone?
Variants of answer:
a) it is an opioid antagonist;
b) it is an opioid agonist;
c) used in alcohol dependence;
d) used to treat opioid dependence;
e) used as a respiratory stimulant.

78. Naloxone is not used during resuscitation of a child whose mother is on:
Variants of answer:
a) methadone;
b) phenylcyclidine;
c) amphetamine;
d) cocaine;
e) LSD.

79. Naloxone is a:
Variants of answer:
a) pure opioid agonist;
b) partial opioid agonist;
c) pure opioid antagonist;
d) none;
e) agonist-antagonist.

80. Which one of the opioids has maximum plasma protein binding capacity?
Variants of answer:
a) morphine;
b) sufentanil;
c) fentanyl;
d) pethidine;
e) buprenorphine.

81. Opioid mu-receptors are responsible for the following clinical actions, except:
Variants of answer:
a) analgesia;
b) respiratory depression;
c) sedation;
d) diuresis;
e) euphoria.

82. Opioid agonist-antagonist is:
Variants of answer:
a) pethidine;
b) pentazocine;
c) buprenorphine;
d) methadone;
e) naloxone.

83. Carbamazepine is not used in:
Variants of answer:
a) mania;
b) partial seizure;
c) trigeminal neuralgia;
d) migraine;
e) epilepsy.

84. Regarding adverse reaction of anti convulsants, all are true, except:
Variants of answer:
a) phenobarbitone — CVS defect;
b) carbamazepine — breech presentation;
c) phenytoin-gum hyperplasia;
d) sodium valproate — neural tube defect;
e) lamotrigine-liver injury.

85. Which of the following is not an antiepileptic agent:
Variants of answer:
a) phenytoin;
b) topiramate;
c) flunarazine;
d) carbamazepine;
e) sodium valproate.

86. Which statement is true about carbamazepine?
Variants of answer:
a) used in trigeminal neuralgia;
b) carbamazepine is an enzyme inhibitor;
c) can cause megaloblastic anemia;
d) it is the drug of choice for status epilepticus;
e) blocks Ca-channels.

87. Selegiline is a selective inhibitor of:
Variants of answer:
a) MAO-A;
b) MAO-B;

c) dopamine;
d) norepinephrine-uptake;
e) dopamine-uptake.

88. False statement about selegeline is:
Variants of answer:
a) it is a MAO-A inhibitor;
b) does not cause cheese reaction;
c) may be used in on-off phenomenon;
d) it is used in parkinsonism;
e) it is used in depression.

89. Levodopa is given along with carbidopa:
Variants of answer:
a) to prevent peripheral decarboxylation of Levodopa;
b) to reduce hallucinations;
c) to increase compliance;
d) to prevent drug tolerance;
e) to reduce side effects.

90. Amantadine acts by:
Variants of answer:
a) replication inhibiting;
b) mRNA inhibiting;
c) tRNA inhibiting;
d) RNA inhibiting;
e) DNA inhibiting.

91. Drugs causing parkinsonism include:
Variants of answer:
a) bromocriptine;
b) haloperidol;
c) amantadine;
d) carbidopa
e) levodopa.

92. Decreased prolactin level seen with:
Variants of answer:
a) phenothiazine;
b) reserprine;
c) levodopa;
d) verapamil;
e) fluoxetine.

93. Treatment of Parkinson's disease:
Variants of answer:
a) levodopa;
b) mazindol;
c) valproic acid;
d) acyclovir;
e) haloperidol.

94. Antipsychotic drug-induced Parkinsonism is treated by:
Variants of answer:
a) anticholinergics;
b) levodopa;
c) selegiline;
d) amantadine;
e) adrenalin.

95. Extrapyramidal syndrome like side effects are seen in:
Variants of answer:
a) haloperidol;
b) clozapine;
c) tetracycline;
d) ketoconazole;
e) ampicillin.

96. The most common side effect reported with treatment with haloperidol is:
Variants of answer:
a) hypotension;
b) akathisia;
c) dryness of mouth;
d) tic disorder;
e) analgesia.

97. The most common side effect of chronic use of phenothiazines is:
Variants of answer:
a) akathisia;
b) tardive akinesia;
c) tardive dyskinesia;
d) muscular dystonia;
e) hypertonia.

98. Lactic acidosis is a side effect of:
Variants of answer:
a) phenformin;
b) dapagliflozin;

c) chlorpropramide;
d) glibenclamide;
e) tetracycline.

99. Zolpidem:
Variants of answer:
a) act on benzodiazipine receptor 1 and 2;
b) action not reversed by flumazenil;
c) sedation is less than diazepam;
d) only sedation and hypnosis;
e) duration of action less than diazepam.

100. Which is true regarding benzodiazepines:
Variants of answer:
a) GABA agonist;
b) diazepam is a short acting benzodiazepine;
c) diazepam causes lesser respiratory depression;
d) nitrazepam is not metabolized in liver;
e) diazepam has higher abuse potential than midazolam.

101. Antagonist to diazepam:
Variants of answer:
a) phenergan;
b) flumazenil;
c) domperidone;
d) bromocriptine;
e) isadrin.

102. Drug used in uncomplicated alcohol withdrawal?
Variants of answer:
a) diazepam;
b) clonidine;
c) propranolol;
d) methadone;
e) naloxone.

103. The following are the benzodiazepines of choice in elderly and those with liver disease, except:
Variants of answer:
a) lorazepam;
b) oxazepam;
c) temazepam;
d) diazepam;
e) phenazepam.

104. All are anxiolytic, except:
Variants of answer:
a) fluoxetine;
b) buspirone;
c) diazepam;
d) nitrazepam;
e) phenazepam.

105. Selective serotonin reuptake inhibitor is:
Variants of answer:
a) desipramine;
b) amitryptiline;
c) fluoxetine;
d) dothiepin;
e) imipramine.

106. The common side effect with fluoxetine therapy is:
Variants of answer:
a) seizure;
b) anxiety;
c) hypotension;
d) loose stools;
e) myosis.

107. What is tianeptine*:*
Variants of answer:
a) selective serotonin reuptake inhibitor;
b) selective norepinephrine reuptake inhibitor;
c) selective serotonin reuptake enchancer;
d) selective dopamine reuptake inhibitor;
e) MAO-A inhibitor.

108. Which drug has the least anticholinergic side effects?
Variants of answer:
a) imipramine;
b) doxepin;
c) fluoxetine;
d) clomipramine;
e) amitriptilin.

109. All are used as antidepressants, except:
Variants of answer:
a) MAO inhibitor;
b) fluoxetine;

c) chlorpromazine;
d) imipramine;
e) amitriptilin.

110. Antidepressant, which is selective 5HT inhibitor is:
Variants of answer:
a) fluoxetine;
b) imipramine;
c) desipramine;
d) amitryptiline;
e) selegilin.

111. Nonsedating antidepressant is:
Variants of answer:
a) fluoxetine;
b) mianserin;
c) amoxepine;
d) imipramine;
e) amitriptilin.

112. Cheese reaction with MAO inhibitors is due to:
Variants of answer:
a) guanethidine;
b) reserpine;
c) cough remedies;
d) tyramine;
e) adrenalin.

113. Tetrahydrocannabinol is an active component of:
Variants of answer:
a) marijuana;
b) LSD;
c) neuroleptanalgesia;
d) heroin;
e) morphine.

3. DRUGS ACTING ON FUNCTION OF THE EXECUTIVE ORGANS

3.1. Drugs affecting respiratory system

Choose one correct answer:

114. Which enzyme is inhibited by aminophylline?
Variants of answer:
a) monoamine oxidase;
b) alcohol dehydrogenase;
c) phosphodiesterase;
d) cytochrome P-450;
e) esterase.

115. With which of the following theophylline has an antagonistic interaction?
Variants of answer:
a) histamine receptors;
b) bradykinin receptors;
c) adenosine receptors;
d) imidazoline receptors;
e) serotonine receptors.

116. All are long acting bronchodilators, except:
Variants of answer:
a) formoterol;
b) salmeterol;
c) terbutaline;
d) adrenaline;
e) dopamine.

117. What is the mode of action of sodium cromoglycate?
Variants of answer:
a) mast cell stabilization;
b) antihistaminic;
c) anticholinergic;
d) none of the above;
e) adrenergic.

118. The drug not used in acute asthma is:
Variants of answer:
a) salbutamol;

b) ipratropium;
c) montelukast;
d) prednisolone;
e) fenoterol.

119. Zileuton is:
Variants of answer:
a) 5-lipooxygenase inhibitor;
b) TXA_2 inhibitor;
c) leukotriene receptor antagonist;
d) prostaglandins synthesis inhibitor;
e) adrenergic drug.

120. Inhibition of 5-lipoxygenase is useful in:
Variants of answer:
a) cardiac failure;
b) bronchial asthma;
c) hepatic failure;
d) arthritis;
e) renal failure.

121. Which one of the following is not an adverse effect of salbutamol?
Variants of answer:
a) tachycardia;
b) tolerance;
c) hypokalemia;
d) hypoglycemia;
e) headache.

122. Long acting beta-2 agonist is:
Variants of answer:
a) fenoterol;
b) salmeterol;
c) salbutamol;
d) terbutaline;
e) klenbuterol.

123. Which of the following is a leukotriene antagonist?
Variants of answer:
a) montelukast;
b) zileuton;
c) omalizumab;
d) nedocromil;
e) prednisolone.

124. Ipratropium bromide is contraindicated in:
Variants of answer:
a) asthma;
b) urinary retention;
c) hypertension;
d) peptic ulcer;
e) COPD.

125. Tiotropium is used for:
Variants of answer:
a) treating urinary retention;
b) treating ileus;
c) increasing salivation;
d) treating asthma;
e) treating headache.

126. Cromolyn sodium is used for following actions:
Variants of answer:
a) mast cell stabilization;
b) H1-antihistamine;
c) phosphodiesterase inhibitor;
d) inhibition of cyclooxygenase;
e) inhibition of phospholipase.

127. Which of the following enzyme is inhibited by aminophylline?
Variants of answer:
a) monoamine oxidase;
b) alcohol dehydrogenase;
c) cytochrome P-450;
d) phosphodiesterase;
e) MAO-A.

128. Steroids in asthma:
Variants of answer:
a) decrease sensitivity of bronchial epithelium to allergen;
b) increase inflammatory response;
c) increase action of bronchodilators;
d) cause potent bronchodilation;
e) increase sensitivity of bronchial epithelium to allergen;

129. Long acting beta-2 agonist is:
Variants of answer:
a) albuterol;
b) salmeterol;

c) pirlbuterol;
d) orciprenaline;
e) fenoterol.

130. Reduced inflammation in airway produced by:
Variants of answer:
a) fluticasone;
b) nitroglycerin;
c) theophylline;
d) salbutamol;
e) ipratropium.

3.2. Drugs affecting gastrointestinal system

Choose one correct answer:

131. Most potent antiemetic used in premedication is:
Variants of answer:
a) atropine;
b) hyoscine;
c) glycopyrrolate;
d) chlorpromazine;
e) ipratropium bromide.

132. Which one of the following drugs has been shown to offer protection from gastric aspiration syndrome in a patient with symptoms of flux?
Variants of answer:
a) ondansetron;
b) metoclopramide;
c) sodium citrate;
d) atropine;
e) neostigmin.

133. All the following are used in motion sickness, except:
Variants of answer:
a) cyclizine;
b) hyoscine;
c) domperidone;
d) meclizine;
e) scopolamine.

134. All of the following drugs may be used for motion sickness, except:
Variants of answer:
a) hyoscine;

b) dicyclomine;
c) domperidone;
d) scopolamine;
e) meclizine.

135. Ondansetron acts by inhibiting receptors:
Variants of answer:
a) 5HT1;
b) 5HT2;
c) 5HT3;
d) norepinephrine;
e) epinephrine.

136. Ondansetron is*:*
Variants of answer:
a) 5HT3 antagonist;
b) 5HT3 agonist;
c) 5HT1 antagonist;
d) dopamine agonist;
e) adrenergic drug.

137. Ondansetron acts by:
Variants of answer:
a) acting on chemoreceptors trigger zone;
b) 5HT3 agonist
c) Dl and D2 receptors;
d) increases GIT motility;
e) increases bronchus activity.

138. Antiemetic action is through:
Variants of answer:
a) chemoreceptor trigger zone;
b) H1 agonist;
c) D1 antagonist;
d) olfactory apparatus;
e) 5 HT4 agonist.

139. All are antiemetics, except:
Variants of answer:
a) domperidone;
b) ondansetron;
c) phenazocine;
d) cyclizine;
e) motilium.

140. Antiulcer drug is:

Variants of answer:

a) pirenzepine;
b) methylcellulose;
c) ciprofloxacin;
d) pyrimethamine;
e) neostigmine.

141. In antacid preparation aluminum hydroxide is added with magnesium salt because:

Variants of answer:

a) magnesium caused constipation;
b) to counteracts constipating effect of aluminum hydroxide;
c) to counteract the diarrhea action of aluminum;
d) aluminum salt causes diarrhea;
e) to counteract the constipating effect of magnesium salt.

142. Misoprostol is:

Variants of answer:

a) prostaglandin E_1 analogue;
b) prostaglandin E_2 analogue;
c) prostaglandin antagonist;
d) antiprogestin;
e) prostaglandin F2 analogue.

143. Which of the following is beneficial in NSAID induced gastric ulcer?

Variants of answer:

a) PGE_1 agonist;
b) PGE_2 agonist;
c) PGD agonist;
d) PGF_2 agonist;
e) PGI2 agonist.

144. Gynaecomastia is side effect of all, except:

Variants of answer:

a) ranitidine;
b) cimetidine;
c) spironolactone;
d) ketoconazole;
e) klotrimazole.

145. All drugs can be used in the treatment of Helicobacter pylori infection, except:

Variants of answer:

a) omeprazole;

b) metronidazole;
c) amoxicillin;
d) mosapride;
e) klaritromycin.

146. Drug of choice of ulcerative colitis is:
Variants of answer:
a) 5-aminosalicylic acid;
b) sucralfate;
c) metronidazole;
d) sulfasalazine;
e) antacids.

3.3. Drugs acting on cardiovascular system

Choose one correct answer:

147. All are inotropic agents, except:
Variants of answer:
a) isoprenaline;
b) amiodarone;
c) dopamine;
d) amrinone;
e) digoxin.

148. Which of the following is not indicated in digitalis poisoning?
Variants of answer:
a) potassium;
b) hemodialysis;
c) phenytoin;
d) lidocaine;
e) panangin.

149. Mechanism of action of digitalis is by inhibiting:
Variants of answer:
a) Ca^{2+} channels;
b) Na^{+}/K^{+} pump;
c) myoneural junction;
d) Na^{+}/H^{+} pump;
e) K+/H+ pump.

150. Drugs are used in digoxin toxicity, except:
Variants of answer:
a) lidocaine;

b) adonisid;
c) phenytoin;
d) potassium;
e) panangin.

151. Digitalis has inotropic action due to:
Variants of answer:
a) initiation of Na^+/K^+-ATPase;
b) trapping Ca^{2+} release;
c) inhibiting Na^+/K^+-ATPase;
d) increase in intracellular K^+;
e) decrease in intracellular K+.

152. Best used in digoxin induced arrhythmia:
Variants of answer:
a) phenytoin;
b) lidocaine;
c) quinidine;
d) procainamide;
e) ethacizine.

153. Digoxin toxicity is aggravated in:
Variants of answer:
a) hypokalemia;
b) hyperkalemia;
c) hypercalcemia;
d) hypermagnesemia;
e) hypocalcemia.

154. Digoxin toxicity is precipitated by all, except:
Variants of answer:
a) electrolyte disturbance;
b) acute myocardial infarction;
c) hepatic disease;
d) renal disease;
e) arrhythmia.

155. Mechanism of action of digitalis is:
Variants of answer:
a) inhibits Na^+/K^+-ATPase pump;
b) inhibits Na^+/H^+-ATPase pump;
c) active metabolites are produced in the liver;
d) inhibits calcium concentration in blood;
e) inhibits chloride concentration in blood.

156. All are true regarding antiarrhythmics, except:
Variants of answer:
a) verapamil belongs to second group drugs;
b) lidocaine is drug of choice for atrial fibrillation;
c) amiodarone is contraindicated in complete heart block;
d) metoprolol depresses heart rate;
e) amiodarone belongs to the third group drugs.

157. Quinidine is:
Variants of answer:
a) Na^+ channel-blocker;
b) K^+ channel blocker;
c) Ca^{2+} channel blocker;
d) Cl^- channel blocker;
e) beta-blocker.

158. Regarding milrinone all statements are true, except:
Variants of answer:
a) thrombocytopenia is rare;
b) phosphodiesterase 3 inhibitor;
c) antiarrhythmic action;
d) given for long duration;
e) releasing of adrenalin.

159. Which of the following is not calcium channel blocker:
Variants of answer:
a) verapamil;
b) pirenzepine;
c) felodipine;
d) nitrendipine;
e) amlodipine.

160. Verapamil is used in all, except:
Variants of answer:
a) angina pectoris;
b) atrial fibrillation;
c) ventricular tachycardia;
d) none of the above;
e) supraventricular tachycardia.

161. All of the following are calcium channel blockers, except:
Variants of answer:
a) nimodipine;
b) verapamil;

c) flunarizine;
d) pirenzepine;
e) nifedipine.

162. Which of the following does not reduce preload on heart:
Variants of answer:
a) glyceryl trinitrate;
b) isosorbide dinitrate;
c) ACE inhibitor;
d) hydralazine;
e) beta-blocker.

163. Long term use of nitrates lead to decreased effect because of:
Variants of answer:
a) development of resistance;
b) ↓ SH-group in the enzyme;
c) decreased oral absorption;
d) increased resistance;
e) decreased resistance

164. All of the following statements about antianginal action of nitrates are true except:
Variants of answer:
a) ↓myocardial O_2 consumption;
b) ↓both pre and after load;
c) ↓total coronary flow;
d) cause favourable redistribution of coronary flow;
e) donators NO.

165. Most powerful coronary vasodilator is:
Variants of answer:
a) adenosine;
b) CO_2;
c) hypoxia;
d) hypertension;
e) adrenalin.

166. K+ channel opener is:
Variants of answer:
a) verapamil;
b) nicorandil;
c) nitroprusside;
d) amrinone;
e) ranolazin.

167. Role of nitrates in congestive cardiac failure is due to:

Variants of answer:

a) direct inotropic action;
b) decrease preload;
c) decrease afterload;
d) coronary vasodilatation;
e) direct chronotropic action

168. Which one of the following drugs causes constipation?

Variants of answer:

a) propranolol;
b) verapamil;
c) nitroglycerin;
d) captopril;
e) amrinone.

169. All the following are true of cholestyramine, except:

Variants of answer:

a) are basic ion exchange resins;
b) cause compensatory increase in HMG-CoA reductase activity;
c) may cause constipation, steatorrhea;
d) patient acceptability is good;
e) decreases lipids.

170. What is true about lovastatin:

Variants of answer:

a) inhibits HMG-CoA synthetase;
b) inhibits HMG-CoA reductase;
c) myositis may result from its prolonged use;
d) decrease synthesis of cholesterol and causes lenticular opacity;
e) inhibits nicotinic acid.

171. Fibrates - false is:

Variants of answer:

a) they increase lipoprotein lipase activity through PPAR alpha, and cause increased lipolysis of triglycerides;

b) they are better absorbed when taken on empty stomach, than when taken with food;

c) cause urticaria, rashes, alopecia, myopathy and G.I. distress;

d) are first line of drugs in severe dysbetalipoproteinemias and hypertri-glyceride-mias;

e) side effects are disorders of digestive system.

172. Hyperkalemia is caused by:
Variants of answer:
a) amphotericin B;
b) ACE inhibitors;
c) cyclosporine;
d) GM-CSF;
e) succinylcholine.

173. Which of the following is not a prodrug?
Variants of answer:
a) lisinopril;
b) enalapril;
c) levodopa;
d) losartan;
e) perindopril.

174. Which one of the following is not an adverse effect of ACE inhibitors?
Variants of answer:
a) cough;
b) hypokalemia;
c) angioneurotic edema;
d) skin rash;
e) hyperkalemia

175. Enalapril is contraindicated in all of the following, except:
Variants of answer:
a) diabetic nephropathy with albuminuria;
b) single kidney;
c) bilateral renal artery stenosis;
d) hyperkalemia;
e) hypotension.

176. All are side effects of lisinopril, except:
Variants of answer:
a) dizziness;
b) jaundice;
c) cough;
d) angioneurotic edema;
e) hyperkalemia.

177. Side effects of captopril are all, except:
Variants of answer:
a) cough;
b) hyperkalemia;

c) renal dysfunction;
d) hemolytic anemia;
e) angioneurotic edema.

178. Which of the following is not true about enalapril?
Variants of answer:
a) it is a prodrug;
b) it is a dipeptide;
c) it is more effective than captopril;
d) has less adverse effects;
e) it is used for hypertension.

179. ACE inhibitors are contraindicated in:
Variants of answer:
a) unilateral renal artery stenosis with single kidney;
b) proteinuria with DM;
c) MI;
d) hypertension;
e) CHF.

180. Enalapril acts by:
Variants of answer:
a) angiotensin converting enzyme inhibition;
b) angiotensin receptor blockade;
c) calcium channel blockade;
d) direct vasodilation;
e) angiotensin receptor activation.

181. All of the following are the indications for use of ACE inhibitors, except:
Variants of answer:
a) hypertension;
b) myocardial infarction;
c) left ventricular dysfunction;
d) pheochromocytoma;
e) CHF.

182. The most significant adverse effect of ACE inhibitors is:
Variants of answer:
a) hypotension;
b) hypertension;
c) hypocalcemia;
d) hypercalcemia;
e) hypomagnemia.

183. Hyperkalemia is associated with:

Variants of answer:

a) ACE inhibitors;
b) chlorthalidone;
c) amphotericin B;
d) amiodarone;
e) rifampicin.

184. Use of the following drug to treat hypertension with pregnancy is contraindicated:

Variants of answer:

a) enalapril;
b) methyldopa;
c) nifedipine;
d) labetalol;
e) moxonidine.

185. All are true about losartan, except:

Variants of answer:

a) angiotensin II antagonist;
b) causes hyperuricemia;
c) does not cause cough;
d) long acting metabolite;
e) does not cause edema.

186. All of the following statements are true regarding losartan, except:

Variants of answer:

a) it is a competitive angiotensin receptor antagonist;
b) it has a long acting metabolite;
c) cause hyperkalemia;
d) not prodrug;
e) does not cause cough.

187. Impotence is most commonly caused by which antihypertensive agents?

Variants of answer:

a) calcium channel blockers;
b) ACE inhibitors;
c) AT1 receptor antagonists;
d) beta-blockers;
e) nitrates.

188. Drug of choice of hypertension in pregnancy is:

Variants of answer:

a) methyldopa;

b) thiazide;
c) nifedipine;
d) labetalol;
e) enalapril.

189. Absolutely contraindicated antihypertensive drug in pregnancy is:
Variants of answer:
a) enalapril;
b) diazoxide;
c) atenolol;
d) nifedipine;
e) amlodipine.

190. Use of which of the following drugs is contraindicated in pregnancy?
Variants of answer:
a) digoxin;
b) nifedipine;
c) amoxicillin;
d) losartan;
e) methyldopa.

191. Drug contraindicated in pregnancy is:
Variants of answer:
a) clonidine;
b) captopril;
c) methyldopa;
d) hydralazine;
e) amoxicillin.

192. The antihypertensive contraindicated in pregnancy is:
Variants of answer:
a) valsartan;
b) hydralazine;
c) clonidine;
d) nifedipine;
e) methyldopa.

193. Antihypertensive not contraindicated in pregnancy is:
Variants of answer:
a) spironolactone;
b) labetalol;
c) sodium nitroprusside;
d) ACE inhibitor;
e) nifedipine.

194. Drug absolutely contraindicated in pregnancy is:
Variants of answer:
a) nifedipine;
b) lisinopril;
c) amoxicillin;
d) atenolol;
e) labetalol.

195. Mechanism of action of clonidine in opioid withdrawal syndrome is:
Variants of answer:
a) beta-blocking effect;
b) inhibition of opioid receptor;
c) action on alfa2 presynaptic nerve ending;
d) postsynaptic action;
e) beta-agonistic effect.

196. Clonidine is a:
Variants of answer:
a) a1 selective agonist;
b) a2 selective agonist;
c) a1 selective antagonist;
d) a2 selective antagonist;
e) b2 selective agonist.

197. Which of the following antihypertensive drugs is devoid of any central action:
Variants of answer:
a) clonidine;
b) methyldopa;
c) propranolol;
d) indapamide;
e) spironolactone.

198. Treatment of choice of acute migraine is:
Variants of answer:
a) ergotamine;
b) sumatriptan;
c) propranolol;
d) paracetamol;
e) coffeine.

199. Use of ergotamine is contraindicated in:
Variants of answer:
a) diabetes mellitus;

b) anemia;
c) ischaemic heart disease;
d) postpartum haemorrhage;
e) migraine.

200. Prophylaxis of migraine is/are:
Variants of answer:
a) flunarizine;
b) cinnarizine;
c) beta-blocker;
d) sodium valproate;
e) carbamazepine.

201. Triptans in migraine acts on which receptor:
Variants of answer:
a) 5HT IA;
b) 5HT IB/ID;
c) 5HT IF;
d) 5HT3;
e) 5HT2.

3.4 Diuretics. Agents affecting tone of uterus

Choose one correct answer:

202. Spironolactone is contraindicated in combination with:
Variants of answer:
a) enalapril;
b) atenolol;
c) verapamil;
d) none of the above;
e) clonidine.

203. Which one of the following drugs causes increased concentration of Na^+ & Cl^- in urine with normal bicarbonate?
Variants of answer:
a) ethacrynic acid;
b) furosemide;
c) acetazolamide;
d) bumetanide;
e) thorasemide.

204. Furosemide causes all, except:
Variants of answer:
a) hyperuricemia;
b) ototoxicity;
c) hypercalcemia;
d) hypokalemia;
e) hyponatremia.

205. ADH acts on:
Variants of answer:
a) proximal convoluted tubule;
b) distal convoluted tubule;
c) loop of Henle;
d) collecting duct;
e) glomerula.

206. Furosemide and thiazides have similar properties in the following:
Variants of answer:
a) duration of action;
b) site of action;
c) effect on urate excretion;
d) well absorbed orally;
e) side effects.

207. Aldosterone antagonists are not used in the treatment of:
Variants of answer:
a) hypertension;
b) congestive heart failure;
c) gynecomastia;
d) hirsutism;
e) liver cirrhosis.

208. One of the following diuretics does not require its presence in the tubular lumen for its pharmacological effects:
Variants of answer:
a) thiazide diuretics;
b) loop diuretics;
c) carbonic anhydrase inhibitors;
d) aldosterone antagonists;
e) thiazide-like diuretics.

209. What is true about furosemide:
Variants of answer:
a) it is given only by IV route;

b) it causes mild diuresis;
c) it is used in pulmonary edema;
d) acts on PCT;
e) causes hyperkalemia.

210. What is wrong about thiazides:
Variants of answer:
a) used in CCF;
b) cause hyperglycemia;
c) increase uric acid concentration in serum;
d) increase calcium excretion in urine;
e) cause hypokalemia.

3.5. Drugs affecting blood

Choose one correct answer:

211. Aspirin is used in prophylaxis of MI, because:
Variants of answer:
a) it is an analgesic;
b) of antiplatelet action;
c) of sedative effect;
d) of prostaglandins inhibitory actions;
e) it is anticoagulant.

212. Aspirin is used in cerebrovascular accident because it:
Variants of answer:
a) inhibits TXA_2 synthesis;
b) alters RBC membrane;
c) stimulates collateral growth;
d) inhibits prostaglandin production;
e) inhibits prostacyclines.

213. Aspirin is used in MI because it:
Variants of answer:
a) decreases thromboxane synthesis;
b) has analgesic effect;
c) reduces prostaglandin synthesis;
d) reduces cardiac work;
e) inhibits prostacyclines.

214. In low doses aspirin acts on:
Variants of answer:
a) cyclooxygenase;

b) TXA_2;
c) PGI_2;
d) lipoxygenase;
e) Pc.

215. Low doses of aspirin used in myocardial infarction act by:
Variants of answer:
a) inhibiting thromboxane synthetase;
b) inhibiting cyclooxygenase;
c) releasing EDRF;
d) high protein binding activity;
e) decreasing lipoxygenase.

216. Aspirin is given in MI because it:
Variants of answer:
a) ↓ PGI_2;
b) ↓ TXA_2;
c) ↓ histamine;
d) ↓ fibrosis;
e) ↓ Pc.

217. Drug used within 6 hours of MI is:
Variants of answer:
a) aspirin;
b) metoprolol;
c) diltiazem;
d) statin;
e) captopril.

218. Mechanism of action of aspirin in MI is:
Variants of answer:
a) TXA_2 synthesis inhibition;
b) TXA_2 synthesis stimulation;
c) adenosine blockage;
d) stimulation of PGF_2 synthesis;
e) decreasing lipoxygenase.

219. Which drug does not cross the placental barrier?
Variants of answer:
a) heparin;
b) warfarin;
c) lithium;
d) morphine;
e) dicumarole.

220. Hemorrhage secondary to human administration can be corrected by administration of:

Variants of answer:

a) vitamin K;
b) whole blood;
c) protamine;
d) ascorbic acid;
e) vitamin C.

221. Low molecular weight heparin therapy is associated with all, except:

Variants of answer:

a) less chances of bleeding;
b) single dose per day;
c) easy filterability by glomerular capillaries;
d) high biological interaction to plasma proteins;
e) long action.

222. Warfarin induced skin necrosis is seen in:

Variants of answer:

a) protein C deficiency;
b) protein S deficiency;
c) hemophilia;
d) antithrombin III deficiency;
e) antithrombin III increasing.

223. Urgent reversal of warfarin therapy can be done by administration of:

Variants of answer:

a) cryoprecipitate;
b) platelet concentrates;
c) fresh frozen plasma;
d) packed red blood cells;
e) packed white blood cells.

224. All the following drugs are used for thromboprophylaxis, except:

Variants of answer:

a) heparin;
b) warfarin;
c) aspirin;
d) antithrombin;
e) fraxiparine.

225. All of the following are GpIIb/IIIa antagonist, except:

Variants of answer:

a) abciximab;

b) clopidogrel;
c) tirofiban;
d) epitifibatide;
e) integriline.

226. «Coronory steal phenomenon» is caused by:
Variants of answer:
a) dipyridamole;
b) diltiazem;
c) propanolol;
d) verapamil;
e) clonidine.

227. All are true about streptokinase and urokinase, except:
Variants of answer:
a) infection with streptococcus causes beneficial dual effect;
b) reduces chances of arterial and venous thrombosis;
c) control is done with thrombin time;
d) mechanism of action is plasmin activating;
e) drugs of first generation.

228. Drugs not used in myocardial infarction are:
Variants of answer:
a) inhibitors of platelet aggregation;
b) thrombolytics;
c) anticoagulants;
d) inhibitors of plasminogen activator;
e) antiplatelets.

229. All are fibrinolytic, except:
Variants of answer:
a) streptokinase;
b) urokinase;
c) alteplase;
d) epsilon aminocaproic acid;
e) tenecteplase.

230. Filgrastim is used in treatment of:
Variants of answer:
a) anemia;
b) neutropenia;
c) malaria;
d) filarial invasion;
e) leukopenia.

4. HORMONAL DRUNG. DRUNG ACTING ON METABOLISM, INFLAMMATION AND IMMUNITY

Choose one correct answer:

231. True about octreotide are all, except:
Variants of answer:
a) is active orally;
b) supresses growth hormone secretion;
c) useful for variceal bleeding;
d) useful in secretory diarrhea;
e) useful in vomiting.

232. Regarding oxytocin:
Variants of answer:
a) secreted by anterior pituitary;
b) acts on myoepithelial cells of breast;
c) causes contraction of uterus during labour;
d) may cause retention of water;
e) has sympatholytic activity.

233. Prolactin secretion is inhibited by:
Variants of answer:
a) dopamine antagonist;
b) GABA agonists;
c) neurophysin;
d) bromocripitine;
e) dopamine agonist.

234. Amongst the following, least glucocorticoid activity is seen with:
Variants of answer:
a) fludrocortisone;
b) dexamethasone;
c) triamcinolone;
d) betamethasone;
e) prednisolone.

235. Prolonged use of steroids can cause:
Variants of answer:
a) decrease in bone matrix protein;
b) hypoglycemia;
c) hypotension;
d) early healing of wound;
e) bronchospasmus.

236. Which of the following is natural glucocorticoid?
Variants of answer:
a) fludrocortisone;
b) dexamethasone;
c) hydrocortisone;
d) triamcinolone;
e) methylprednisolone.

237. Intracellular receptor activator is:
Variants of answer:
a) thyrotropin;
b) noradrenaline;
c) estradiol;
d) glucagon;
e) adrenaline.

238. Androgen receptor blocking drug is:
Variants of answer:
a) tamoxifen;
b) cyproterone acetate;
c) mifepristone;
d) nandrolone;
e) progesterone.

239. Which one of the following substances is the most potent androgen?
Variants of answer:
a) dihydroepiandrostendione;
b) dihydrotestosterone;
c) androstendione;
d) testosterone;
e) estrogen.

240. Finasteride is a:
Variants of answer:
a) 5 alpha reductase inhibitor;
b) phosphodiesterase inhibitor;
c) alpha la blocker;
d) androgen receptor blocker;
e) alpha agonist.

241. Androgen antagonists includes:
Variants of answer:
a) cyproterone;
b) spironolactone;

c) cimetidine;
d) progesterone;
e) minocycline.

242. All are true regarding oral hypoglycemic agent, except:
Variants of answer:
a) effective only after total pancreatectomy;
b) metformin causes lactic acidosis;
c) causes release of insulin from beta-cells;
d) useful in obese maturity onset diabetics;
e) metformin decreases gluconeogenesis.

243. Excessive intake (hypervitaminosis) of which of the following vitamin is associated with increased risk of congenital malformations:
Variants of answer:
a) vitamin A;
b) biotin;
c) folic acid;
d) vitamin K;
e) vitamin C.

244. True about metabolism of vitamin D in kidney is:
Variants of answer:
a) conversion of 25 to 1,25 dihydroxycholecalciferol;
b) formation of 25 hydroxylase;
c) activated form is deactivated;
d) none;
e) conversion of 25 to 1,75 dihydroxycholecalciferol.

245. NSAIDs are useful because they inhibit:
Variants of answer:
a) cyclooxygenase;
b) thromboxane;
c) histamine;
d) 5-HT receptors;
e) phospholipase A2.

246. In aspirin mechanism of action:
Variants of answer:
a) lipoxygenase ↓;
b) cyclooxygenase ↓;
c) phospholipase ↓;
d) lipoxygenase ↑;
e) cyclooxygenase ↑.

247. Which prostaglandin is used in NSAID induced ulcer?
Variants of answer:
a) misoprostol;
b) carboprost;
c) mirtazapine;
d) milrinone;
e) amrinone.

248. What is true about aspirin toxicity:
Variants of answer:
a) tinnitus is an early symptom;
b) 10–30 g causes poisoning;
c) hyperthermia, tachypnea are early complications;
d) causes thrombocytopenic purpura;
e) protects stomach.

249. All are true regarding ketorolac, except:
Variants of answer:
a) respiratory depression is a side effect;
b) more potent than aspirin;
c) effect is prolonged;
d) this is an analgesic;
e) central action.

250. A patient receiving allopurinol requires dose reduction of:
Variants of answer:
a) 6-mercaptopurine;
b) cyclophosphamide;
c) azathioprine;
d) cimetidine;
e) heparine.

251. Granulomatous hepatitis is caused by:
Variants of answer:
a) allopurinol;
b) methyldopa;
c) furazolidone;
d) amiodarone;
e) moxonidine.

252. Allopurinol is:
Variants of answer:
a) increase uric acid excretion;
b) decreases uric acid synthesis;

c) both;
d) none;
e) increase uric acid synthesis.

253. Drugs inhibiting formation of purines:
Variants of answer:
a) 5-fluorouracil;
b) 6-mercaptopurine;
c) hydroxyurea;
d) melhotrexate;
e) cytosine arabinoside.

254. Allopurinol prevents conversion of:
Variants of answer:
a) hypoxanthine to xanthine;
b) xanthine to hypoxanthine;
c) hypoxanthine to improved;
d) xanthine to uric acid;
e) uric acid to xanthine.

255. Which of the following drugs is known to cause granuloma in the liver:
Variants of answer:
a) allopurinol;
b) nifedipine;
c) tetracycline;
d) methyltestosterone;
e) amlodipine.

256. H1-blocker with least sedative effect is:
Variants of answer:
a) chlorpheniramine;
b) promethazine;
c) terfenadine;
d) diphenhydramine;
e) loratadin.

257. Which of the following drugs are secreted in breast milk:
Variants of answer:
a) antithistaminics;
b) antithyroid drugs;
c) penicillin;
d) diazepam;
e) antiepileptics.

258. Which one drug is not the second generation antihistamine:

Variants of answer:

a) cyclizine;
b) fexofenadine;
c) loratadine;
d) cetirizine;
e) promethazine.

259. Which of the following drugs is not given for sedation, but has sedation as side effect:

Variants of answer:

a) antihistamine;
b) phenytoin;
c) cyclosporine and macrolides;
d) amphotericin B;
e) captopril.

260. A 70-year-old man was administered penicillin intravenously. Within 5 minutes, he developed generalized urticaria, swelling of lips, hypotension and bronchospasm. The first choice of treatment is to administer:

Variants of answer:

a) chlorpheniramine inj;
b) epinephrine inj;
c) high dose hydrocortisone tablet;
d) nebulised salbutamol;
e) prednisolone tab.

261. First drug used in anaphylactic shock is:

Variants of answer:

a) adrenaline;
b) corticosteroid;
c) theophylline;
d) antihistaminic;
e) claritine.

5. CHEMOTHERAPEUTIC AGENTS

5.1 Chemotherapeutic agents. Concept of chemotherary. Antibiotics (ß-Lactam antibiotics, macrolides, tetracyclins)

Choose one correct answer:

262. All of the following are therapeutic uses of penicillin G, except:
Variants of answer:
a) bacterial meningitis;
b) rickettsial infection;
c) syphilis;
d) anthrax;
e) streptococcus.

263. Cell wall synthesis is inhibited by all of the following, except:
Variants of answer:
a) amoxicillin;
b) penicillin G;
c) tetracycline;
d) cefotetan;
e) aztreonam.

264. All of the following statements regarding penicillin G are true, except:
Variants of answer:
a) can be given orally;
b) active against gram-positive organisms;
c) probenecid given along with penicillin G increases its duration of action;
d) acts by inhibition of cell wall synthesis;
e) side effect is allergic reaction.

265. The drug of choice for treatment of neurosyphilis is:
Variants of answer:
a) benzathine penicillin G;
b) procaine penicillin G;
c) penicillin V;
d) tetracycline;
e) ampicilline.

266. One of the following drugs is not penicillinase susceptible:
Variants of answer:
a) amoxicillin;
b) penicillin G;
c) piperacillin;

d) cloxacillin;
e) penicillin V.

267. All the following antibiotics act on the cell wall, except:
Variants of answer:
a) ampicillin;
b) bacitracin;
c) cycloserine;
d) griseofulvin;
e) cefaclor.

268. Drug contraindicated in infectious mononucleosis is:
Variants of answer:
a) ampicillin;
b) doxycycline;
c) atropine;
d) gentamicin;
e) amoxicillin.

269. Treatment for penicillinase producing organism:
Variants of answer:
a) ampicillin;
b) cloxacillin;
c) methicillin;
d) tetracycline;
e) cephaloridine.

270. Drug, which is contraindicated in pregnancy is:
Variants of answer:
a) tetracycline;
b) erythromycin;
c) ampicillin;
d) chloroquine;
e) amoxicillin.

271. Which of the following drugs acts against pseudomonas?
Variants of answer:
a) piperacillin;
b) methicillin;
c) nafcillin;
d) cloxacillin;
e) penicillin V.

272. Which drug is not effective in pseudomonas infection?
Variants of answer:
a) cefaclor;
b) ceftazidime;
c) cefoperazone;
d) carbenicillin;
e) piperacillin.

273. All act on pseudomonas, except:
Variants of answer:
a) nafcillin;
b) carbenicillin;
c) azlocillin;
d) ticarcillin;
e) piperacillin.

274. All of the following drugs have good activity against pseudomonas aerugenosa, except:
Variants of answer:
a) cephadroxil;
b) cefepime;
c) cefoperazone;
d) ceftazidime;
e) carbapenems.

275. Which one of the following drugs is an antipseudomonal penicillin?
Variants of answer:
a) cephalexin;
b) piperacillin;
c) cloxacillin;
d) dicloxacillin;
e) cefuroxime.

276. Which of the following is an antipseudomonal penicillin?
Variants of answer:
a) carbenicillin;
b) amoxicillin;
c) oxacilline;
d) nafcillin;
e) amoxiclav.

277. Which of the following antimicrobials has antipseudomonal action?
Variants of answer:
a) cefpodoxime proxetil;

b) ceforanide;
c) cefotetan;
d) cefoperazone;
e) cefuroxime.

278. Following drugs may be used for pseudomonas infection, except:
Variants of answer:
a) pefloxacine;
b) azithromycin;
c) imipenem;
d) ceftazidime;
e) merapenem.

279. Which of the following antibiotics is least nephrotoxic:
Variants of answer:
a) streptomycin;
b) gentamycin;
c) polymyxin B;
d) doxycycline;
e) neomycin.

280. All the following drugs cause renal failure, except:
Variants of answer:
a) cephaloridine;
b) amphotericin B;
c) cefoperazone;
d) gentamicin’
e) kanamycin.

281. Which of these antibiotics are safe in renal failure:
Variants of answer:
a) cephalexin;
b) tetracycline;
c) nitrofurantoin;
d) gentamicin;
e) doxycycline.

282. Drug of choice for prophylaxis in diphtheria is:
Variants of answer:
a) erythromycin;
b) doxycycline;
c) tetracycline;
d) clindamycin;
e) metacycline.

283. The group of antibiotics which possess additional anti-inflammatory and immunomodulatory activities is:

Variants of answer:

a) tetracyclines;
b) polypeptide antibiotics;
c) fluoroquinolones;
d) macrolides;
e) penicillines.

284. Which of the following drugs acts on "motilin" receptors:

Variants of answer:

a) erythromycin;
b) tetracycline;
c) norfloxacin;
d) chloramphenicol;
e) amoxicilline.

285. All of the following statements about adverse effects of tetracyclines are true except:

Variants of answer:

a) may lead to discolouration of teeth;
b) are a common cause of superinfections;
c) may precipitate liver damage;
d) are not known to be teratogenic;
e) are contraindicated for the children before 12 years.

286. Mechanism of action of tetracycline is:

Variants of answer:

a) inhibit attachment of tRNA;
b) inhibits peptidyltransferase;
c) causes misreading of mRNA;
d) causes termination of peptide chain elongation;
e) inhibit attachment of DNA.

287. Drug clinically interacting with ribosomes to interfere with translation in bacteria:

Variants of answer:

a) tetracycline;
b) erythromycin;
c) puromycin;
d) oligomycin;
e) aztreonam.

288. Antibiotic resistance by enzyme inactivation seen in:

Variants of answer:

a) penicillin;

b) fluoroquinolones;

c) tetracycline;

d) aminoglycoside;

e) cephalosporins.

289. Which of the following drug causes pseudotumour of the cerebrum:

Variants of answer:

a) sparfloxacin;

b) tetracycline;

c) gentamicin;

d) clofazimine;

e) ampicillin.

290. Tetracycline inhibits protein synthesis by:

Variants of answer:

a) inhibiting initiation and causing misreading of mRNA;

b) binding to 30S and 50S subunits and inhibits binding of aminoacyl tRNA;

c) inhibiting peptidyltransferase activity;

d) inhibiting translocation;

e) increasing peptidyltransferase activity.

291. Which is not a third generation cephalosporin:

Variants of answer:

a) ceftriaxone;

b) cefotaxime;

c) ceftizoxime;

d) cefuroxime;

e) cefepim.

292. Which of the following antibiotics acts by inhibiting cell wall synthesis?

Variants of answer:

a) cefepime;

b) aminoglycosides;

c) erythromycin;

d) doxycycline;

e) klindamycin.

293. Which of the following is a fourth generation cephalosporin:

Variants of answer:

a) ceftriaxone;

b) cefaclor;
c) cefepime;
d) cefuroxime;
e) cefuroxime.

294. The following drug is not useful for MRSA:
Variants of answer:
a) cefaclor;
b) cotrimoxazole;
c) ciprofloxacin;
d) vancomycin;
e) ceftobiprol.

295. Interstitial nephritis is most commonly seen with:
Variants of answer:
a) methicilline;
b) ampicilline;
c) amoxycilline;
d) cloxacilline;
e) clarithromycin.

296. Drug induced interstitial nephritis caused by:
Variants of answer:
a) methicillin;
b) cloxacillin;
c) azlocillin;
d) piperacillin;
e) oxacillin.

5.2. Antibiotics (ending). Synthetic Antimicrobial agents

Choose one correct answer:

297. Ciprofloxacin acts on:
Variants of answer:
a) DNA histone proteins;
b) DNA gyrase;
c) cAMP;
d) mRNA polymerase;
e) cGMP.

298. Fluroquinolones act by inhibiting:
Variants of answer:
a) DNA dependent RNA synthetase;

b) cell wall synthesis;
c) DNA gyrase;
d) protein synthesis ;
e) RNA gyrase.

299. One of the following drug is not effective against anaerobes:
Variants of answer:
a) penicillin;
b) chloramphenicol;
c) gentamicin;
d) clindamycin;
e) lincomycin.

300. Which of the following drugs is not given in enteric fever?
Variants of answer:
a) amikacin;
b) co-trimoxazole;
c) ciprofloxacin;
d) ceftriaxone;
e) ofloxacin.

301. What is false about aminoglycosides*:*
Variants of answer:
a) are bacteriostatic;
b) distributed only extracellularly;
c) excreted unchanged in urine;
d) teratogenic;
e) causes ototoxicity.

302. Which of the following is not an antipseudomonal agent?
Variants of answer:
a) vancomycin;
b) ticarcillin;
c) ceftazidime;
d) tobramycin;
e) piperacilline.

303. Drug of choice for methicillin resistant staphylococcus aureus is:
Variants of answer:
a) amoxicillin-clavulanate;
b) vancomycin;
c) flucloxacillin;
d) clindamycin;
e) erythromycin.

304. All the following drugs are used in pseudomonas infection, except:
Variants of answer:
a) pefloxacin;
b) imipenem;
c) aztreonam;
d) vancomycin;
e) ceftazidim.

305. Dose of which drug is not altered in chronic renal failure:
Variants of answer:
a) rifampicin;
b) gentamicin;
c) tetracycline;
d) cephalosporins;
e) kanamycin.

306. Which of the following drugs dosage interval should be maximum in a patient with creatinine clearance less than 10:
Variants of answer:
a) amikacin;
b) rifampicin;
c) vancomycin;
d) amphotericin B;
e) ampicillin.

307. Drug of choice for pneumocystis carinii:
Variants of answer:
a) co-trimoxazole;
b) erythromycin;
c) penicillin;
d) metronidazole;
e) ampicillin.

308. In a patient with listeria meningitis who is allergic to penicillin, the antimicrobial of choice is:
Variants of answer:
a) vancomycin;
b) gentamicin;
c) trimethoprim-sulphamethoxazole;
d) ceftriaxone;
e) polymixins.

309. Best drug for anaerobic infection:
Variants of answer:
a) metronidazole;

b) imipenem;
c) aztreonam;
d) clotrimazole;
e) vancomycin.

5.3. Antimicobacterial, anti-spirochete, antiviral, antifungal drugs

Choose one correct answer:

310. Pyridoxine deficiency is seen in:
Variants of answer:
a) isoniazid;
b) CRF;
c) congestive heart failure;
d) alcohol;
e) analgetic.

311. Administration of which drug can lead to neuropsychiatric symptoms:
Variants of answer:
a) amoxicillin;
b) ethionamide;
c) rifampicin;
d) ceftriaxone;
e) azithromycin.

312. All are features of ethambutol toxicity, except:
Variants of answer:
a) retrobulbar neuritis;
b) colour vision defects;
c) hyperuricemia;
d) hypercalcemia;
e) leukopenia.

313. Orange coloured urine is due to:
Variants of answer:
a) rifampicin;
b) INH;
c) pyrazinamide;
d) ethambutol.

314. The drug inhibiting DNA-dependent RNA polymerase in mycobacteria is:
Variants of answer:
a) INH;

b) rifampicin;
c) ciprofloxacin;
d) ethionamide;
e) amoxicilline.

315. Which of the following is not a hepatotoxic drug?
Variants of answer:
a) ethambutol;
b) rifampicin;
c) INH;
d) cycloserine;
e) tetracycline.

316. Which antitubercular drug metabolism is under genetic control?
Variants of answer:
a) rifampicin;
b) INH;
c) cyclosporine;
d) PZM;
e) kanamycin.

317. Urine is colored by:
Variants of answer:
a) thiamine;
b) rifampicin;
c) mepacrine;
d) cyclosporine;
e) amikacin.

318. Zidovudine is a:
Variants of answer:
a) protease inhibitor;
b) NNRTI;
c) NRTI;
d) fusion inhibitor;
e) nuclease inhibitor.

319. Nevirapine belongs to the following group:
Variants of answer:
a) NNRTI;
b) protease inhibitor;
c) fusion inhibitor;
d) NRTI;
e) nuclease inhibitor.

320. Lamivudine is:
Variants of answer:
a) protease inhibitor;
b) NNRTI;
c) NRTI;
d) fusion inhibitor;
e) protease increasing.

321. Mechanism of action of zidovudine is:
Variants of answer:
a) protein synthesis inhibition;
b) reverse transcriptase inhibition;
c) nucleic acid synthesis inhibition;
d) cell membrane synthesis inhibition;
e) direct transcriptase inhibition.

322. Protease is:
Variants of answer:
a) saquinavir;
b) nevirapine;
c) lamivudine;
d) abacavir;
e) efavirenz.

323. Indinavir is:
Variants of answer:
a) NNRTI;
b) NRTI;
c) protease inhibitor;
d) fusion inhibitor;
e) neuroaminidase inhibitor.

324. All the following antimicrobial agents are used topically, except:
Variants of answer:
a) clotrimazole;
b) griseofulvin;
c) nystatin;
d) miconazole;
e) ketoconazole.

325. All of the following drugs act on cell membrane, except:
Variants of answer:
a) nystatin;
b) griseofulvin;

c) amphotericin B;
d) polymyxin B;
e) polymixin C.

326. Which of the following drugs is not an antifungal agent:
Variants of answer:
a) ciclopiroxolamine;
b) ketoconazole;
c) undecylenic acid;
d) clofazimine;
e) griseofulvin.

327. Drugs causing Addison's disease are:
Variants of answer:
a) ketoconazole;
b) aminoglutethimide;
c) cyclosporine;
d) glucocorticoids;
e) rifampicin.

328. Which drug would treat both dermatophysis and candidal infection?
Variants of answer:
a) ketoconazole;
b) griseofulin;
c) nystatin;
d) tolnaftate;
e) amphotericin B.

5.4. Antiprotozoal and antiparasitic agents. Antiseptics and disinfectants

Choose one correct answer:

329. Chloroquine acts on:
Variants of answer:
a) merozoites;
b) blood schizonts;
c) tissue schizonts;
d) gametocytes;
e) trophozoites.

330. All are true regarding chloroquine, except:
Variants of answer:
a) acts only on exo-erythrocytic cycle;

b) acts on DNA and RNA of parasite;
c) causes pigmentation of nail and mucosa;
d) infected RBC has more drug;
e) has anti-inflammatory effect.

331. Pyronaridine is an:
Variants of answer:
a) antimalarial;
b) anti-HIV;
c) antifungal;
d) antibacterial;
e) antimycotic.

332. The antimalarial drug effective in pre-erythrocytic phase in liver is:
Variants of answer:
a) proguanil;
b) chloroquine;
c) pyrimethamine;
d) quinine;
e) rifampicin.

333. Mebendazole is used in all of the following, except:
Variants of answer:
a) hook worm;
b) round worm;
c) strongyloides;
d) trichuris trichuria;
e) Echonococcus.

334. Albendazole may be used for treatment of all of the following conditions, except:
Variants of answer:
a) enterobius;
b) ascariasis;
c) ankylostoma;
d) schistosomiasis;
e) lambliosis.

335. Mebendazole is effective for following, except:
Variants of answer:
a) cysticercosis;
b) trichiura;
c) trichinella;

d) ascaris;
e) ankilostoma.

336. Broad spectrum antihelmintics are:
Variants of answer:
a) niclosamide;
b) praziquantel;
c) albendazole;
d) mebendazole;
e) pyrantel pamoate.

337. Which drug is not given in Tenia solium?
Variants of answer:
a) niclosamide;
b) praziquantal;
c) albendazole;
d) flubendazole;
e) mebendazole.

338. Which of the following is not true about mebendazole:
Variants of answer:
a) safe in pregnancy;
b) broad spectrum antihelminthic;
c) relatively low systemic bioavailability;
d) active against both larva and adult worm;
e) used for ascaridosis.

6. ANTIBLASTOMIC ADENTS

Choose one correct answer:

339. Methotrexate causes:
Variants of answer:
a) inhibition of dihydrafolate reductase;
b) inhibition of folate synthatase;
c) not absorbed orally;
d) alkylation of DNA;
e) alkylation of RNA.

340. The drug not used in prostatic carcinoma:
Variants of answer:
a) finasteride;

b) diethylstilbestrol;
c) testosterone;
d) flutamide;
e) bicalutamide.

341. Methotrexate is used in high doses in:
Variants of answer:
a) osteosarcoma;
b) retinoblastoma;
c) rhabdomyosarcoma;
d) Ewing's sarcoma;
e) Caposhi's syndrome.

342. Methotrexate acts by:
Variants of answer:
a) inhibition of dihydrofolate reductase;
b) aldose dehydrogenase;
c) glutathione reductase;
d) inhibition of sterol synthesis;
e) inhibition of DNA.

7. PRINCIPLES OF ACUTE POISONING TREATMENT

Choose one correct answer:

343. Antagonist of benzodiazepine is:
Variants of answer:
a) nalorphine;
b) carbamazepine;
c) naloxone;
d) flumazenil;
e) clonidine.

344. Methyl alcohol poisoning; true about:
Variants of answer:
a) ethyl alcohol is used;
b) formation of formic acid produces blindness;
c) activated charcoal is given in all cases;
d) gastric lavage done;
e) fomepizole inhibits the formation of formic acid.

345. An unconscious man is brought into hospital suffering from methyl alcohol poisoning. All of the following are correct, except:

Variants of answer:

a) kussmaul's breathing could be expected to be a feature of the condition;
b) papilloedema would be consistent with this form of intoxication;
c) his plasma bicarbonate might be very low;
d) methyl alcohol would be metabolised to acetaldehyde;
e) his plasma bicarbonate might be very don't change.

346. N-acetyl-cysteine is an antidote for poisoning due to:

Variants of answer:

a) paracetamol;
b) datura;
c) aspirin
d) propranolol;
e) captopril.

347. Amatoxins in mushroom poisoning acts by inhibiting:

Variants of answer:

a) DNA;
b) mRNA;
c) adenosine;
d) G-proteins;
e) rhibosome inhibiting.

ANSWERS

1. GENERAL PHARMACOLOGY

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
1	d	5	a	9	d	13	a	17	b
2	a	6	b	10	d	14	b	18	c
3	a	7	a	11	b	15	c	19	a
4	a	8	a	12	d	16	c	20	c

2. NEUROTROPIC DRUGS

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
21	a	40	a	59	c	78	a	97	c
22	c	41	b	60	d	79	c	98	a
23	c	42	c	61	b	80	b	99	c
24	a	43	d	62	b	81	d	100	c
25	a	44	c	63	d	82	b	101	b
26	b	45	a	64	a	83	d	102	a
27	a	46	b	65	a	84	b	103	d
28	a	47	a	66	b	85	c	104	a
29	c	48	d	67	a	86	a	105	c
30	d	49	c	68	a	87	b	106	d
31	b	50	a	69	a	88	a	107	c
32	d	51	a	70	a	89	a	108	c
33	b	52	a	71	a	90	a	109	c
34	c	53	c	72	a	91	b	110	a
35	a	54	b	73	b	92	c	111	a
36	b	55	c	74	a	93	a	112	d
37	b	56	b	75	c	94	d	113	a
38	c	57	c	76	b	95	a		
39	d	58	a	77	a	96	b		

3. DRUGS ACTING ON FUNCTION OF THE EXECUTIVE ORGANS

3.1. Drugs acting on respiratory system

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
114	c	118	c	122	b	126	a	130	a
115	c	119	a	123	a	127	d		
116	d	120	b	124	b	128	a		
117	a	121	d	125	d	129	b		

3.2. Drugs acting on digestive system

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
131	b	135	c	139	c	143	a		
132	b	136	a	140	a	144	a		

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
133	c	137	a	141	b	145	d		
134	c	138	a	142	a	146	a		

3.3. Drugs acting on cardiovascular system

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
147	b	158	c	169	d	180	a	191	b
148	b	159	b	170	b	181	d	192	a
149	b	160	c	171	b	182	a	193	b
150	b	161	d	172	b	183	a	194	b
151	c	162	d	173	a	184	a	195	c
152	b	163	b	174	b	185	b	196	b
153	a	164	c	175	a	186	d	197	d
154	c	165	c	176	b	187	d	198	b
155	a	166	b	177	d	188	a	199	c
156	a	167	b	178	b	189	a	200	a
157	a	168	b	179	a	190	d	201	b

3.4. Diuretics. Drugs acting on myometrium tone and contractile activity

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
202	a	204	c	206	d	208	d	210	d
203	a	205	d	207	c	209	c		

3.5. Drugs acting blood and blood formation

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
211	b	215	b	219	a	223	c	227	a
212	a	216	b	220	c	224	d	228	d
213	a	217	a	221	d	225	b	229	d
214	a	218	a	222	a	226	a	230	b

4. HORMONAL DRUNG. DRUNG ACTING ON METABOLISM, INFLAMMATION AND IMMUNITY

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
231	a	238	b	245	a	252	b	259	a
232	b	239	b	246	b	253	b	260	b
233	d	240	a	247	a	254	a	261	a
234	c	241	a	248	a	255	a		
235	a	242	a	249	a	256	c		
236	c	243	a	250	a	257	a		
237	a	244	a	251	a	258	a		

5. CHEMOTHERAPEUTIC AGENTS

5.1. Chemotherapeutic agents. Concept of chemotherapy. Antibiotics

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
262	b	269	b	276	a	283	d	290	b
263	c	270	a	277	d	284	a	291	d
264	a	271	a	278	b	285	d	292	a
265	b	272	a	279	d	286	a	293	c
266	d	273	a	280	c	287	a	294	a
267	d	274	a	281	a	288	c	295	a
268	a	275	b	282	a	289	b	296	a

5.2. Antibiotics (ending). Synthetic antimicrobial drugs

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
297	b	300	a	303	b	306	c	309	a
298	c	301	a	304	d	307	a		
299	c	302	a	305	a	308	c		

5.3. Antimycobacterial, antisyphilitic, antiviral, antifungal agents

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
310	a	314	b	318	c	322	a	326	d
311	b	315	d	319	a	323	c	327	a
312	d	316	b	320	c	324	b	328	a
313	a	317	b	321	b	325	b		

5.4. Antiprotozoal and antiparasitic agents. Antiseptics and disinfectants

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
329	b	331	a	333	c	335	a	337	a
330	a	332	a	334	d	336	c	338	a

6. ANTIBLASTOMIC ADENTS

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
339	a	340	c	341	a	342	a		

7. PRINCIPLES OF ACUTE POISONING TREATMENT

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
343	d	344	a	345	d	346	a	347	b

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СБОРНИК ТЕСТОВ

(на английском языке)

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