Assessment tools for certification in the discipline «Fundamentals of design and drug's chemistry» for students of the educational program specialist in the specialty 33.05.01 Pharmacy, direction (profile) Pharmacy, form of study full - time for the 2023-2024 academic year

№	Questions for the student's intermediate certification	Verifiable indicators of competence achievement
1.	Design of the structure of synthetic drugs based on the principle of chemical modification to simulate their biological activity. Derivatives of aromatic compounds.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
2.	Design of the structure of synthetic drugs based on the principle of chemical modification to simulate their biological activity. Derivatives of heterocyclic compounds	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
3.	Design of the structure of medicinal substances based on the principle of chemical modification to simulate their biological activity: antibacterial drugs	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
4.	Design of the structure of medicinal substances based on the principle of chemical modification to simulate their biological activity: complex compounds	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
5.	Design of the structure of synthetic drugs based on the principle of chemical modification to simulate their biological activity: antiviral drugs	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
6.	Design of the structure of medicinal substances based on the principle of chemical modification to simulate their biological activity: antitumor drugs	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
7.	Design of the structure of medicinal substances based on the principle of chemical modification to simulate their biological activity: modeling the interaction of a medicinal substance with bioreceptors	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
8.	Design of medicinal substances of natural origin to simulate their biological activity. Alkaloids.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.

9.	Design of medicinal substances of natural origin to simulate their biological activity. Glycosides.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
10.	Empirical basis for the design of prodrugs to model their biological activity. Amino acids, peptides, proteins.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
11.	Empirical basis for the design of prodrugs to model their biological activity. Nucleic acids.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
12.	The importance of functional groups in the design of the structure of new drug candidates. Heterofunctional compounds.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
13.	Analytical methods for confirming the structure of synthesized drugs: titrimetric analysis. Basic concepts, classification of titrimetric meths, application of titrimetric methods.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
14	Analytical methods for confirming the structure of synthesized drugs: titrimetric analysis. Basic concepts, classification of titrimetric compounds, application of titrimetric methods: acid-base titration.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
15	Analytical methods for confirming the structure of synthesized drugs: titrimetric analysis. Basic concepts, classification of titrimetric methods, application of titrimetric methods: redox titration.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
16	Analytical methods for confirming the structure of synthesized drugs: titrimetric analysis. Basic concepts, classification of titrimetric compounds, application of titrimetric methods: complexometric titration.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
17	Analytical methods for confirming the structure of synthesized drugs: titrimetric analysis. Basic concepts, classification of titrimetric mets, application of titrimetric methods: precipitation titration	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
18.	Analytical methods for confirming the structure of synthesized drugs: electrochemical methods of analysis. Potentiometric titration.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
19.	Analytical methods for confirming the structure of synthesized drugs: The essence of optical methods of analysis, their	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1.,

	classification, advantages and disadvantages.	PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
20.	Analytical methods for confirming the structure of synthesized drugs: optical methods of analysis. Photocolorimetry	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
21.	Analytical methods for confirming the structure of synthesized drugs: optical methods of analysis. Spectrophotometry.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.
22.	Analytical methods for confirming the structure of synthesized drugs: General characteristics of instrumental methods of analysis.	UC -1.1.3., UC -1.2.1, UC -1.2.2, UC -1.2.3., UC -1.3.1, UC -1.3.2, PC -5.1.1., PC -5.2.1., PC -5.3.1, PC -5.3.2., PC -8.1.1., PC -8.2.1. , PC -8.3.1, PC -8.3.2., PC -11.1.1., PC -11.2.1, PC -11.2.2., PC-11.3.1, PC -11.3.2.

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https://elearning.volgmed.ru/course/view.php?id=8517#section-8

Considered at the meeting of the department of «26» May 2023, protocol No10

Head of the Departmen  A.K.Brel’