

**Assessment tools for certification
in the internship "Pharmacognosy practice"
for students of the educational program of 2022 admission year
Specialist in the specialty 33.05.01 Pharmacy,
direction (profile) Pharmacy,
form of study full-time
for the 2024-2025 academic year**

Regular assessment includes the following types of assignments: testing, interview on control questions, assessment of mastering practical skills (abilities).

Interim certification on practice includes the following types of tasks: assessment of mastering of practical skills (abilities), interview.

List of control questions for the interview:

№	Questions for assessment	Verifiable competences
1.	Preparatory process. Characterisation of the main stages.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
2.	Pharmacognostic characteristics, collection and primary processing of morphological groups of raw materials - underground organs (roots, rhizomes, tubers, bulbs, etc.).	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
3.	Pharmacognostic characteristics, collection and primary processing of morphological groups of raw materials - bark, examples of LRS.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
4.	Pharmacognostic characteristics of collection and primary processing from morphological groups of raw materials - herb, leaves, flowers, examples of LRS.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
5.	Pharmacognostic characteristics of collection and primary processing of morphological groups of raw materials - fruits, seeds, examples of WRS.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
6.	Drying of ORS. Types of drying and dryers.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

7.	Features of drying and storage of raw materials containing vitamins.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
8.	Features of drying and storage of raw materials containing polysaccharides.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
9.	Features of drying and storage of raw materials containing essential oils.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
10.	Features of drying and storage of raw materials containing alkaloids.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
11.	Features of drying and storage of raw materials containing glycosides.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
12.	Features of drying and storage of raw materials containing simple phenols.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
13.	Features of drying and storage of raw materials containing anthracene derivatives.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
14.	Features of drying and storage of raw materials containing flavonoids.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
15.	Features of drying and storage of raw materials containing saponins.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

16.	Features of drying and storage of raw materials containing tannins.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
17.	Bringing raw materials to a standard state. Normative documents governing the quality of medicinal raw materials.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
18.	Quality indicators of medicinal plant raw materials.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
19.	Authenticity of medicinal plant raw materials. Methods of authenticity determination.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
20.	Benignity of medicinal plant raw materials. Methods of determining benignity.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
21.	Introduction of medicinal plants. Concept. General characteristics, goals and objectives of introduction.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
22.	Cultivation of medicinal plants, goals and objectives. Methods of cultivation of some plants.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1. ОПК-1, ПКО-4
23.	Determination of stocks of medicinal plants. Stages of resource study, brief characterisation.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1. ОПК-1, ПКО-4
24.	Resource science concepts (thicket, commercial array, survey site, transect, commercial specimen, model specimen, yield, projective cover, etc.).	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

25.	Methods of determining stocks of medicinal plants. Advantages, disadvantages.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
26.	Determination of the area of the study thicket.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
27.	Determination of yield (raw material stocking density). Criteria for choosing the method of determining the yield.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
28.	Determination of yield of medicinal plants on survey sites. Specify the calculation formulae, examples of HR determined by this method.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
29.	Determination of yield of medicinal plants on model specimens. Specify the calculation formulae, examples of HR determined by this method.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
30.	Determination of yield of medicinal plants by projective cover. Specify calculation formulae, examples of HR determined by this method.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
31.	Calculation of the amount of stocks of medicinal plant raw materials (biological, operational stock).	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
32.	Calculation of annual harvesting volume, harvesting turnover.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.
33.	Environmental protection measures, terms of restoration of medicinal plant stocks.	УК-1.1.3, УК-1.2.1, УК-1.2.2, УК-1.2.3, УК-1.3.1, УК-1.3.2, УК 8.1.1, УК-8.1.2, УК-8.2.1, УК-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

Examples of test tasks

Verifiable competences: YK-1.1.3, YK-1.2.1, YK-1.2.2, YK-1.2.3, YK-1.3.1, YK-1.3.2, YK-8.1.1, YK-8.1.2, YK-8.2.1, YK-8.3.1, OPK-1.1.1, OPK-1.2.1, OPK-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

1. TERMS OF COLLECTING BUDS:

- A. During the period of bud swelling.
- B. During the period of sap movement.
- B. During the period of leaf budding. D. During budding.

2. BARK IS HARVESTED:

- A. During fruit ripening.
- B. During the period of sap movement.
- B. During budding.
- Г. All year round.

3. TIMING OF LEAF COLLECTION:

- A. During flowering or budding.
- B. During the period of sap movement.
- B. During the wilting period of the plant.
- Г. During the fruiting period.

4. THE TIMING OF HERB HARVESTING:

- A. During the flowering period.
- B. After flowering.
- B. During the budding period.
- Г. During the fruit ripening period.

5. TIMING OF FLOWER COLLECTION:

- A. During the budding period.
- B. During the period of sap movement.
- B. At the end of flowering.
- Г. In the first half of the flowering period.

Examples of tasks to assess the mastery of practical skills

Verifiable competences: YK-1.1.3, YK-1.2.1, YK-1.2.2, YK-1.2.3, YK-1.3.1, YK-1.3.2, YK 8.1.1, YK-8.1.2, YK-8.2.1, YK-8.3.1, ОПК-1.1.1, ОПК-1.2.1, ОПК-1.2.2, ПК-4.1.1, ПК-4.2.1, ПК-4.2.3, ПК-4.3.1.

1. The laboratory of the chemical-pharmaceutical enterprise received for analysis medicinal plant raw material - dandelion roots (crushed).

1. Determine the authenticity of the medicinal plant material (LRS) received for analysis:

a) Carry out macroscopic analysis of raw materials; b) Carry out microscopic analysis.

c) Carry out qualitative reactions regulated by regulatory documentation.

2 Determine the benignity of medicinal plant raw materials received for analysis within the framework of commodity analysis:

a) Separate the analytical sample from the average sample.

b) Determine the purity of the medicinal plant material.

c) Determine the degree of crushing of the medicinal plant material.

EXAM CARD № 1

on Pharmacognosy practice
for speciality 33.05.01 Pharmacy
(speciality level)

The laboratory of the chemical-pharmaceutical enterprise received for analysis medicinal plant material - dandelion roots (crushed).

1 Determine the authenticity of medicinal plant material, received for analysis:

a) Carry out macroscopic analysis.

b) Carry out microscopic analysis.

2. Determine the benignity of the medicinal plant material submitted for analysis within the framework of commodity analysis:

a) Carry out qualitative reactions for the main groups of BAS.

b) Determine the index of purity of ORS.

c) Determine the degree of milling (grindability) of ORS.

d) Select analytical samples from the average in the commodity analysis.

Head of the Department _____ A.A.Ozerov
M.P.

Considered at the meeting of the department of pharmaceutical, toxicological chemistry, pharmacognosy and botany "28" August 2024, protocol No 1

Head of the Department



A.A. Ozerov