

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

BANK OF ASSESSMENT TOOLS FOR DISCIPLINE

BOTANY

Training program (specialty): **33.05.01 PHARMACY**

Department: **BIOLOGY**

Mode of study **FULL-TIME**

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

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

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

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

2. List of assessment tools

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

No.	Assessment tool	Brief description of the assessment tool	Presentation of the assessment tool in the BAT
1	Test	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of a student	Bank of test tasks
2	Situational tasks	A method of control that allows you to assess the criticality of thinking and the degree of the material comprehension, the ability to apply theoretical knowledge in practice.	List of tasks
3	Terminological dictation	A knowledge testing tool that allows you to evaluate the theoretical training of a student.	List of terms

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

Code and formulation of competence	Stage of competence formation	Controlled sections of the discipline	Assessment tools
GPC-1	Current, Mid-term	Section 1 Fundamentals of cytology Section 2 Plant tissues, structure, functions and topography Section 3 Organs of higher plants. Morphological and anatomical structure Section 4 Systematics of plant organisms Section 5 Elements of plant physiology	Test Situational tasks Terminological dictation

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

Entry /current control is carried out by the discipline teacher when conducting classes in the form of tests, situational tasks, terminological dictations.

Assessment tools for current control.

4.1 Test for the assessment of competence "GPC-1":

1. A plant cell is different from an animal cell:

1. The cell wall is cellulose
2. Heterotrophic type of assimilation
3. Spare carbohydrate - glycogen
4. The shell is formed by chitin

2. One of the forms of plant cells:

1. Pericyclic
2. Parenchymal
3. Astrosclereid
4. Unipolar

3. The structural components of a plant cell are:

1. Double cell wall containing glycogen
2. Plastids
3. Cytostome
4. Contractile vacuoles

4. The cytoplasm of a plant cell is limited by plasma membranes:

1. Plasmalemma
2. Mesoplasm
3. Rhizoderm
4. Periderm

5. Cytoplasm movement:

1. Chaotic
2. Trickle
3. Nutations
4. Brownian

6. The process of water entering the cell through a semipermeable membrane is called:

1. Osmosis
2. Diffusion
3. Active transport
4. Diffusion, active transport

7. Types of plasmolysis:

1. Linear
2. Corner
3. Cubic
4. Prismatic

8. Component of the primary cell wall:

1. Pectin
2. Glycogen
3. Lipids
4. Proteins

9. The growth of the secondary cell wall occurs as a result of:

- 1 Apposition
2. Mitosis

3. Cellular differentiation
4. Intercalary growth

10. Types of pores of the primary cell wall:

1. Simple
2. Complex
3. Semi-complex
4. Tested

11. Ergastic substances of the cell include:

1. Sclereids
2. Tracheids
3. Inclusions
4. Initials

12. Spare plant cell nutrients:

1. Fats
2. Wax
3. Terpenes
4. Steroids

13. Lipid drops of spare fats are deposited in:

1. Ribosomes
2. Chromoplasts
3. Cytoplasm
4. Adhesive plasters

14. Spare proteins are most often found in the form of:

1. Calcium Oxalate
2. Drops
3. Aleurone grains
4. Druze

15. Functions of plant cell vacuoles:

1. Participate in the division
2. Accumulate spare substances
3. Isolate ergastic substances
4. Support turgor
5. Regulate water-salt metabolism

16. Types of plant cell plastids:

1. Dictyosomes
2. Chloroplasts
3. Polysomes
4. Chromoplasts
5. Adhesive plasters

17. Photosynthesis involves:

1. Mitochondria
2. Chloroplasts
3. The Core
4. Chromoplasts
5. Adhesive plasters

18. Chromoplasts are found in fruits:

1. Mountain ash
2. Rosehip
3. Cucumbers
4. Pumpkins

5. Cranberries

19. Protoplast derivatives include:

1. Vacuoles
2. Inclusions
3. Cell wall
4. Physiologically active substances (phytohormones, vitamins)
5. Metabolic products

20. Protoplast metabolic products are formed in:

1. The core
2. Cellular juice
3. Cytoplasm
4. Vacuoles
5. Lysosomes

21. The plant cell consists of:

1. Phellogen
2. Meristems
3. Protoplast
4. Cell wall
5. Inanimate inclusions

22. The living contents of the cell are:

1. Endosperm
2. Cambium
3. Protoplast
4. The embryo
5. Meristem

23. Protoplast consists of:

1. Organoids
2. Phloem
3. Hyaloplasmas
4. Xylem
5. Parenchyma

24. Plastids found only in plant cells:

1. Dictyosomes
2. Chloroplasts
3. Lysosomes
4. Chromoplasts
5. Adhesive plasters

25. The nucleus in the plant cell is located:

1. In the center
2. Near the cell walls
3. Almost in the center
4. Always in the corner of the cage
5. Inside the vacuole

26. What set of chromosomes does the endosperm have gymnosperms:

1. 1 n
2. 2 n
3. 3 n
4. 4 n

27. Which set of chromosomes does the sporophyte have gymnosperms

1. 1 n
2. 2 n

3. 3 n

4. 4 n

28. Which set of chromosomes has a gametophyte gymnosperms

1. 1 n

2. 2 n

3. 3 n

4. 4 n

29. Plants that reproduce by means of seeds that develop from seedpods, lying openly on the seed scales are called

1. Gymnosperms

2. Angiosperms

3. Bryophyta

4. Pteridophyta

30. The outer or first whorl of flower, consisting of sepals

1. Calyx

2. Sepal

3. Corolla

4. Petal

31. The outer or first whorl of flower, consisting of sepals

1. Calyx

2. Sepal

3. Corolla

4. Petal

32. One of the separate parts of a calyx, usually green

1. Calyx

2. Sepal

3. Corolla

4. Petal

33. Second whorl of flower made of petals

1. Calyx

2. Sepal

3. Corolla

4. Petal

34. One of the separate parts of corolla usually coloured and more or less showy

1. Calyx

2. Sepal

3. Corolla

4. Petal

35. The third or male whorl of flower; made of stamens

1. Calyx

2. Sepal

3. Corolla

4. Petal

36. An individual part of an androecium that produces pollen grains, usually composed of anther, connective and filament

1. Calyx

2. Sepal

3. Corolla

4. Petal

37. The fourth or female whorl composed of one or more carpels

1. Gynoecium

2. Sepal

3. Stamen

4. Petal

38. A leaf-like organ bearing ovules along the margins, the unit structure of a compound pistil

1. Carpels
2. Sepal
3. Stamen
4. Petal

39. Various types of placentation

1. marginal
2. parietal
3. axile
4. free central

40. The systematic position of mosses

- 1) Kingdom
- 1) Plantae
- 2) Division
- 2) Bryophyta
- 3) Class
- 3) Bryopsida
- 4) Family
- 4) Sphagnales

41. The gametophytic generation of...

1. Sphagnum
2. Polytrichum
3. Fungi
4. Algae

42. The leaf of *Sphagnum*

1. single-layer
2. multi-layered
3. unicellular
4. multicellular

43. The leaf of *Polytrichum*

1. single-layer
2. multi-layered
3. unicellular
4. multicellular

44. Are terrestrial non-vascular plants is...

1. Mooses
2. Lichens
3. Fungi
4. Algae

45. Plant are higher forms in which the gametophyte is differentiated into 'stem' like and 'leaf' like parts

1. Mooses
2. Lichens
3. Fungi
4. Algae

46. What set of chromosomes does the endosperm have gymnosperms

1. 1 n
2. 2 n
3. 3 n
4. 4 n

47. Which set of chromosomes does the sporophyte have gymnosperms

1. 1 n
2. 2 n

3. 3 n

4. 4 n

48. Which set of chromosomes has a gametophyte gymnosperms

1. 1 n

2. 2 n

3. 3 n

4. 4 n

49. Ovules naked Seeds attached to a scale

1. gymnosperms

2. mooses

3. angiosperms

4. pteridophyta

50. Plants that reproduce by means of seeds that develop from seedpods, lying openly on the seed scales are called

1. gymnosperms

2. angiosperms

3. bryophyta

4. pteridophyta

4.2 Situational tasks for the assessment of competence "GPC-1":

- 1) When studying the preparation of the plant tissue of a flowering plant, living translucent oblong rectangular cells with rounded corners covered with a dense transparent shell are visible through a light microscope. There is a colorless viscous substance under the shell. Many cells have a long outgrowth, also covered with a cell membrane. A small rounded body is visible in the cage. In many cells, this body is located inside a long outgrowth. In a colorless viscous substance, light cavities — bubbles are visible. What is the term for a long cell outgrowth?
- 2) When doing independent work, the student saw on a slice under a microscope along the periphery of the organ (under the epidermis) cells having the shape of a hexagonal polyhedron, with a thickening of the cell wall in the corners. When the preparation was stained with chlorine-zinc-iodine dye, the cell walls turned blue. Name the type of plant tissue.
- 3) When doing independent work, the student colored the pulp of the pear fruit with sulfuric acid aniline and found groups of cells colored bright yellow under a microscope. The cells had an iso-diametric shape with a noticeable cavity and pore channels. Name these cells and the type of plant tissue.
- 4) When doing independent work on the anatomy of vegetative organs, the student saw 2 xylem rays on a slice under a microscope in the center of the preparation, and 2 open vascular-fibrous bundles between them. The primary cortex was absent. Secondary bark and integumentary tissue were present. Identify the organ of the plant. Name the type of integumentary tissue, list the tissues that make up the secondary bark. Name the types and composition of xylem.
- 5) When doing independent work on the anatomy of vegetative organs, the student saw on a slice under a microscope that the entire central axial cylinder was permeated with isolated vascular-fibrous bundles. The bundles are closed, arranged randomly. Further, a ring of mechanical tissue is found to the periphery of the organ, to which the integumentary tissue is adjacent. Identify the organ of the plant. Name the type of covering tissue, list the tissues included in the central axial cylinder.
- 6) Studying the view from the leaf surface while doing independent work on plant anatomy, the student saw unicellular trichomes and multicellular glandular cells under a microscope. Name the types of fabrics. Their importance in plant life.
- 7) When doing independent work on the anatomy of vegetative organs, the student saw the periderm, spring and autumn tracheids, bordered pores with a torus, wood rays, resin

channels on a slice under a microscope. Identify the organ of the plant. Name the features of conductive tissues.

- 8) When doing independent work on the anatomy of vegetative organs, the student saw the periderm, trapezoidal sections of the secondary phloem, the cambial ring, wide- and narrow-light elements of the xylem, the core of parenchymal cells on a slice under a microscope. Identify the organ of the plant. Name the features of conductive tissues.
- 9) When doing independent work on conducting tissues, the student studied a vascular-fibrous bundle and saw under a microscope that the phloem adjoins the xylem on both sides, the upper (larger) section of the phloem faces the periphery of the organ and is separated from the xylem by a layer of tabular cells. An underdeveloped section of the phloem is adjacent directly to the xylem. Determine the type of conducting beam. Name the vegetative organs of the plant in which this type of conducting beam can be located.
- 10) When doing independent work, the student studied a cross-section of the rhizome. Under the microscope, I found a vascular-fibrous bundle in which the phloem elements are located in the center of the bundle, and the xylem elements are located on the periphery. Determine the type of conducting beam. Name the class of plants for which this type of conducting beam is characteristic

4.3 Terminological dictation for the assessment of competence "GPC-1":

The archegonium is the female reproductive organ of mosses, ferns, horsetails and plauns.

The antheridium is the male organ of reproduction in mosses, ferns, horsetails, plauns and gymnosperms.

Bryology is a science that studies mosses.

Vegetation – growth, the state of active vital activity of the plant, its growth and nutrition

A vacuole is a membrane pouch filled with cell juice.

A gametophyte is a representative of the sexual generation or a stage of the plant life cycle from a spore to a zygote

Hygrophyte — terrestrial plants adapted to living in conditions of excessive humidity.

Hygrophobe — terrestrial animals that avoid excessive humidity

A hydrobiont is an organism that constantly lives in an aquatic environment.

Hydrophile is an organism that loves water.

Hydrophyte — terrestrial-aquatic plants submerged in water only by the lower parts.

A hydrophobe is an organism that avoids water.

Hyphae is a unicellular or multicellular thread forming the mycelium of the fungus.

The ovary is the lower expanded part of the pistil, from which the pericarp is formed.

Overgrowth — sexual generation (gametophyte) spore plants, except mosses, on which gametes ripen.

Zoospore is a mobile cell of algae that serves for settlement.

Cambium is a single—row layer of cells of educational tissue in the stems and roots of dicotyledonous and gymnosperm plants.

Xerophyte is a plant of arid habitats.

Xylem is the tissue of higher plants that conducts water from the roots to the leaves.

Macrospore is a large female spore of seed plants from which a gametophyte develops.

The macrosporangium is the organ in which female outgrowths develop in seed plants.

Internodes are a part of the plant stem between the points of attachment of leaves.

Mesophyll is the pulp or the main part of the leaf of plants.

4.4. Tasks (assessment tools) for the exam (GPC-1):

1. Botany is the scientific study of plants. Basic characteristics of Domains: Bacteria, Archaea, Eukaryota.

2. Prokaryotic cells and eukaryotic cells are two basic types. Certain basic features of prokaryotic and eukaryotic cells. Differences between prokaryotic and eukaryotic cells
3. Structure of plant cells. Differences between plant and animal cells.
4. Cell organelles: nucleus, nucleoli, nucleoplasm, cell wall, vacuole, mitochondria.
5. Cell organelles: endoplasmic reticulum. Smooth and rough endoplasmic reticulum. Ribosomes. Golgi apparatus. Lysosome.
6. Plastids: chloroplasts, chromoplasts, leucoplast.
7. Cell Pigments: chlorophylls, carotenoids, xanthophylls, phycobilins. Cell-Water Movement.
8. Ergastic substances: reserve materials, secretory materials, excretory materials or waste products.
9. Three basic types of plant cells and tissues, based on cell wall: parenchyma, collenchyma, sclerenchyma.
10. Meristems: apical meristems, lateral meristems, intercalary meristem.
11. Dermal tissues: epidermis, guard cells, trichomes (hairs). Different types of trichomes
12. Parenchyma cells: chlorenchyma, aerenchyma, collenchyma, sclerenchyma. Sclereids.
13. Xylem: water-conducting tissue, tracheids. Structure and functions.
14. Phloem: food-conducting tissue. Structure and functions.
15. Root types: primary root, lateral branching roots, adventitious roots, scale leaves. Functions of roots
16. Basic differentiation regions of the root: root cap, elongation region, zone of maturation.
17. Root modifications: storage roots, prop roots, contractile roots, aerial roots, parasite roots (haustoria), nodules involved in nitrogen fixation, mycorrhizae
18. Stem branching: monopodial, sympodial, acrotony, basitony. Types of phyllotaxis (leaf arrangement): spiral, opposite, whorled.
19. Types of plant body: primary plant body, secondary plant body.
20. Anatomical differences between dicot stem and monocot stem.
21. Systematics. Taxa of plants. Species.
22. Kingdom Plantae. Algae. Salient Features. Thallus organization. Cell Structure and Pigmentation.
23. Kingdom Plantae. Algae. Structure and reproduction of green, diatoms, red and brown algae. Reproduction.
24. Kingdom Mycota (Fungi). Subdivision Mastigomycotina. Salient Features.
25. Kingdom Mycota (Fungi). Subdivision Zigomycotina. Salient Features.
26. Kingdom Mycota (Fungi). Subdivision Ascomycotina. Salient Features.
27. Kingdom Mycota (Fungi). Subdivision Basidiomycotina. Salient Features.
28. Lichens. Salient Features. Lichen body types.

29. Bryophyta. Characteristic of taxa. Distinguishing features of Bryophytes. Alternation of Generations. Classification.
30. Sub-divisions: Lycopsidea. Lycopodium. Characteristic of taxa. Distinguishing features. Alternation of Generations.
31. Sub-divisions: Sphenopsida. Equisetum. Characteristic of taxa. Distinguishing features. Alternation of Generations.
32. Division Pteridophyta. Family Polypodiaceae. Characteristic of taxa. Distinguishing features. Alternation of Generations.
33. Division Gymnosperms. Characteristic of taxa. Distinguishing features.
34. Division Angiosperms. Parts of a flower.
35. Division Angiosperms. Formula and Diagram of flower.
36. Flowering plant classification. Family - the Umbelliferae. Distinguishing features.
37. Flowering plant classification. Family - the *Rosaceae*. Distinguishing features.
38. Flowering plant classification. Family - the *Compositae*. Distinguishing features.
39. Flowering plant classification. Family - the *Solanaceae*. Distinguishing features.
40. Flowering plant classification. Family - the *Liliaceae*. Distinguishing features.

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

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

The content of the assessment tool

Bank of test tasks is presented on the Educational Portal of the PRMU, a link to this electronic resource. <https://sdo.pimunn.net/mod/quiz/view.php?id=111996>

5.1 The list of control tasks and other materials necessary for the assessment of knowledge, skills and work experience (*the teacher indicates only those tasks and other materials that are used within the framework of this discipline*)

5.1.1. Questions for the discipline exam **Botany**

Question	Competence code (according to the WPD)
1. Botany is the scientific study of plants. Basic characteristics of Domains: Bacteria, Archaea, Eukaryota.	GPC-1
2. Prokaryotic cells and eukaryotic cells are two basic types. Certain basic features of prokaryotic and eukaryotic cells. Differences between prokaryotic and eukaryotic cells	GPC-1
3. Structure of plant cells. Differences between plant and animal cells.	GPC-1
4. Cell organelles: nucleus, nucleoli, nucleoplasm, cell wall, vacuole, mitochondria.	GPC-1
5. Cell organelles: endoplasmic reticulum. Smooth and rough endoplasmic	GPC-1

reticulum. Ribosomes. Golgy apparatus. Lysosome.	
6. Plastids: chloroplasts, chromoplasts, leucoplast.	GPC-1
7. Cell Pigments: chlorophylls, carotenoids, xanthophylls, phycobilins. Cell-Water Movement.	GPC-1
8. Ergastic substances: reserve materials, secretory materials, excretory materials or waste products.	GPC-1
9. Three basic types of plant cells and tissues, based on cell wall: parenchyma, collenchyma, sclerenchyma.	GPC-1
10. Meristems: apical meristems, lateral meristems, intercalary meristem.	GPC-1
11. Dermal tissues: epidermis, guard cells, trichomes (hairs). Different types of trichomes	GPC-1
12. Parenchyma cells: chlorenchyma, aerenchyma, collenchyma, sclerenchyma. Sclereids.	GPC-1
13. Xylem: water-conducting tissue, tracheids. Structure and functions.	GPC-1
14. Phloem: food-conducting tissue. Structure and functions.	GPC-1
15. Root types: primary root, lateral branching roots, adventitious roots, scale leaves. Functions of roots	GPC-1
16. Basic differentiation regions of the root: root cap, elongation region, zone of maturation.	GPC-1
17. Root modifications: storage roots, prop roots, contractile roots, aerial roots, parasite roots (haustoria), nodules involved in nitrogen fixation, mycorrhizae	GPC-1
18. Stem branching: monopodial, sympodial, acrotony, basitony. Types of phyllotaxis (leaf arrangement): spiral, opposite, whorled.	GPC-1
19. Types of plant body: primary plant body, secondary plant body.	GPC-1
20. Anatomical differences between dicot stem and monocot stem.	GPC-1
21. Systematics. Taxa of plants. Species.	GPC-1
22. Kingdom Plantae. Algae. Salient Features. Thallus organization. Cell Structure and Pigmentation.	GPC-1
23. Kingdom Plantae. Algae. Structure and reproduction of green, diatoms, red and brown algae. Reproduction.	GPC-1
24. Kingdom Mycota (Fungi). Subdivision Mastigomycotina. Salient Features.	GPC-1
25. Kingdom Mycota (Fungi). Subdivision Zigomycotina. Salient Features.	GPC-1
26. Kingdom Mycota (Fungi). Subdivision Ascomycotina. Salient Features.	GPC-1
27. Kingdom Mycota (Fungi). Subdivision Basidiomycotina. Salient	GPC-1

Features.	
28. Lichens. Salient Features. Lichen body types.	GPC-1
29. Bryophyta. Characteristic of taxa. Distinguishing features of Bryophytes. Alternation of Generations. Classification.	GPC-1
30. Sub-divisions: Lycopsidea. Lycopodium. Characteristic of taxa. Distinguishing features. Alternation of Generations.	GPC-1
31. Sub-divisions: Sphenopsida. Equisetum. Characteristic of taxa. Distinguishing features. Alternation of Generations.	GPC-1
32. Division Pteridophyta. Family Polypodiaceae. Characteristic of taxa. Distinguishing features. Alternation of Generations.	GPC-1
33. Division Gymnosperms. Characteristic of taxa. Distinguishing features.	GPC-1
34. Division Angiosperms. Parts of a flower.	GPC-1
35. Division Angiosperms. Formula and Diagram of flower.	GPC-1
36. Flowering plant classification. Family - the Umbelliferae. Distinguishing features.	GPC-1
37. Flowering plant classification. Family - the <i>Rosaceae</i> . Distinguishing features.	GPC-1
38. Flowering plant classification. Family - the <i>Compositae</i> . Distinguishing features.	GPC-1
39. Flowering plant classification. Family - the <i>Solanaceae</i> . Distinguishing features.	GPC-1
40. Flowering plant classification. Family - the <i>Liliaceae</i> . Distinguishing features.	GPC-1

6. Criteria for evaluating learning outcomes

For the credit (example)

Learning outcomes	Evaluation criteria	
	Not passed	Passed
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes.	The level of knowledge in the volume corresponding to the training program. Minor mistakes may be made
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes.	Basic skills are demonstrated. Typical tasks have been solved, all tasks have been completed. Minor mistakes may be made.
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes.	Basic skills in solving standard tasks are demonstrated. Minor mistakes may be made.

Motivation (personal attitude)	Educational activity and motivation are poorly expressed, there is no willingness to solve the tasks qualitatively	Educational activity and motivation are manifested, readiness to perform assigned tasks is demonstrated.
Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve practical (professional) tasks. Repeated training is required	The competence developed meets the requirements. The available knowledge, skills and motivation are generally sufficient to solve practical (professional) tasks.
The level of competence formation*	Low	Medium/High

* - not provided for postgraduate programs

For the exam (example)

Learning outcomes	Assessment of competence developed			
	unsatisfactory	satisfactory	good	excellent
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes	The minimum acceptable level of knowledge. A lot of light mistakes were made	The level of knowledge in the volume corresponding to the training program. A few light mistakes were made	The level of knowledge in the volume corresponding to the training program, without errors
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	Basic skills are demonstrated. Typical problems with light mistakes have been solved. All tasks have been completed, but not in full.	All basic skills are demonstrated. All the main tasks have been solved with light mistakes. All tasks have been completed, in full, but some of them with shortcomings	All the basic skills were demonstrated, all the main tasks were solved with some minor shortcomings, all the tasks were completed in full
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	There is a minimal set of skills for solving standard tasks with some shortcomings	Basic skills in solving standard tasks with some shortcomings are demonstrated	Skills in solving non-standard tasks without mistakes and shortcomings are demonstrated
Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve professional tasks. Repeated training is required	The formation of competence meets the minimum requirements. The available knowledge and abilities are	The formation of competence generally meets the requirements, but there are shortcomings. The available	The formation of competence fully meets the requirements. The available knowledge, skills and motivation are fully sufficient to

Learning outcomes	Assessment of competence developed			
	unsatisfactory	satisfactory	good	excellent
		generally sufficient to solve professional tasks, but additional practice is required for most practical tasks	knowledge, skills and motivation are generally sufficient to solve professional tasks, but additional practice is required for some professional tasks	solve complex professional tasks
The level of competence formation*	Low	Below average	Intermediate	High

For testing:

Mark "5" (Excellent) - points (100-90%)

Mark "4" (Good) - points (89-80%)

Mark "3" (Satisfactory) - points (79-70%)

Less than 70% – Unsatisfactory – Mark "2"

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