KROK TESTS 2005-2016
PLANT CELL

1. After application of chlorine-zinc-iodine to the thick colourless cell membranes of collenchyme they became violet. That means the membranes are:
A. Cellulose
B. Lignificated
C. Cutinized
D. Mineralized
E. Suberinized (2015)

2. A vegetational microspecimen was treated with Sudan III solution. As a result of it cell membranes turned pink that means they contain:
A. Suberin
B. Cellulose
C. Lignin
D. Pectin
E. Hemicellulose (2007, 2009, 2011)

3. After a plant microslide had been processed with phloroglucinol together with concentrated hydrochloric acid, the cell membranes turned crimson red. This indicates presence of:
A. Lignin
B. Pectin
C. Cellulose
D. Hemicellulose
E. Suberin (2009)

4. In the course of plant cells treatment with phloroglucinol with concentrated sulfuric acid their cell walls became crimson-red, which means:
A. Lignification
B. Suberization
C. Mucification
D. Cutinization
E. Mineralization (2014)

5. During examination of a plant cell under the electron microscope some structures in form of a stack of flattened membrane cisterns and vesicles were found. What organelles are these?
A. Golgi apparatus
B. Endoplasmic reticulum
C. Plastids
D. Mitochondrions
E. Microbodies (2010, 2011)

6. The section of a sunflower seed has been treated with *Sudan III* solution that caused pink-and-orange staining. This is the evidence of presence of:
A. Fatty oil
B. Protein
C. Starch
D. Inulin
E. Cellulose (2010)

7. Microscopic study of soybean seeds stained with Sudan III revealed droplets of various sizes. They are:
A. Lipids
B. Proteins
C. Starch
D. Inulin
E. Glycogen (2012, 2015)

8. Histochemical test for fixed oils with sudan III results in the following stain colour:
A. Pink and orange
B. Blue and violet
C. Lemon-yellow
D. Raspberry-red E. Black and purple (2012)

9. Microscopic examination of a potato tuber showed some cell inclusions that become blue-violet as affected by Lugol's iodine solution. These inclusions are:
A. Starch granules
B. Aleurone grains
C. Drops of fatty oil
D. Insulin crystals

E. Calcium oxalate crystals (2009)

10. It is known that depending on pH of cellular fluid petal coloration can vary from blue-and-violet to pink and light pink. This is caused by presence of:
A. Anthocyanins
B. Carotins
C. Xanthophylls
D. Phycobilins
E. Chlorophylls (2007, 2008)

11. Microscopic examination of a ficus leaf revealed in some cells of its epidermis a protrusion of the cell membrane with an accumulation of crystals that dissolve in the hydrochloric acid and release carbonic acid gas. This structure is called:
A. Cystolith
B. Raphide
C. Druse
D. Single crystal
E. Styloid (2009, 2010)

12. Racemose clusters of calcium carbonate crystals are detected among the waste products of a protoplast. These crystals are:
A. Cystoliths
B. Isolated crystals
C. Raphides
D. Styloids
E. Druses (2015, 2016)

13. Examination of the leaf epidermis revealed cells containing cystoliths. Presence of cystoliths is typical for plants of the following family:
A. Urticaceae
B. Brassicaceae
C. Fabaceae
D. Solanaceae
E. Papaveraceae (2012)

14. Elongated narrow prismatic crystals with sharpened points were detected during microscopic investigation of Convallaria majalis mesophile. These crystals are:
A. Styloids
B. Druses
C. Crystalline sand
D. Cystoliths
E. Perigonium (2015)

15. Styloids are big single elongateprismatic needle-like crystals. They are mostly typical for the following plants:
A. Monocotyledonous
B. Dicotyledonous
C. Gymnospermous
D. Lycopodiophyta
E. Equisetophyta (2011)

PLANT TISSUES

16. Stem thickening occurs due to functioning of the following structures:
A. Lateral meristem
B. Apical meristem
C. Wound meristem
D. Intercalary meristem
E. Endoderm (2016)

17. When root was being studied under microscope, root hairs were detected, which are cell growths of:
A. Epiblema
B. Epidermis
C. Endoderm
D. Exoderm
E. Mesoderm (2014, 2015)

18. Examination of a root revealed a tissue that has root fibrils and doesn’t have stomata and cuticle. What tissue is it?
A. Epiblema
B. Epiderm

C. Periderm
D. Endoderm
E. Exoderm (2010)

19. Microscopical examination of transverse section of a root revealed investing tissue consisting of thin-walled, closely joining cells with root fibrilla. This tissue is called:
A. Epiblem
B. Root cap (pileorhiza)
C. Periderm
D. Endoderm
E. Epiderm (2008)

20. In root transverse section laying and formation from pericycle of the following organs can be seen in maturation zone:
A. Lateral roots
B. Trichome
C. Additional roots
D. Root hairs
E. Root cap (2014)

21. Cross section of a root conducting zone shows pericycle that gives rise to:
A. Lateral roots
B. Trichomes
C. Adventitious roots
D. Root fibrilla
E. Root cap (2013)

22. Microscopy of monocotyledon leaf epidermis revealed that stomatal complex has four accessory cells. That means stomatal apparatus belongs to the following type:
A. Tetracytic
B. Diacytic
C. Anisocytic
D. Anomocytic
E. Paracytic (2014)

23. Microscopy of a leaf epidermis of Convallaria majalis showed that the stomata had four accessory cells. Two of them were lateral, and two other were polar. What type of stomatal mechanism is it?
A. Tetracytic
B. Diacytic
C. Anisocytic
D. Anomocytic
E. Paracytic (2009)

24. Microscopy of leaf epidermis of Lamiaceae (Labiatae) family plants revealed that both accessory cells are perpendicular to a stoma. Such stomata are called:
A. Diacytic
B. Paracytic
C. Anisocytic
D. Anomocytic
E. Tetracytic (2016)

25. Microscopic examination of a stem of a perennial plant revealed integumentary tissue of secondary origin that was formed as a result of activity of:
A. Phellogen
B. Procambium
C. Cambium
D. Pericycle
E. Protoderm (2012, 2013)

26. Microscopic examination of ground tissue of a small branch revealed cork and felloderm. These are the derivates of:
A. Phellogen
B. Cambium
C. Procambium
D. Protoderm
E. Pericycle (2010, 2011)

27. While studying a stem covered with periderm, the researcher realized that gas exchange takes place through
A. Lenticels
B. Stomata

C. Pores
D. Non-suberized (conducting) cells
E. Hydatodes (2012)

28. A sample section of an axial body shows a complex consisting of phellogen and its derivatives - cork and phelloderm. This tissue is called:
A. Periderm
B. Colenchyma
C. Sclerenchyma
D. Epiblema
E. Epidermis (2013, 2015, 2016)

29. A substance performs mechanical function; its cells are covered with uniformly thick lignified membranes. This substance is:
A. Sclerenchyma
B. Collenchyme
C. Periderm
D. Cambium
E. Sieve tubes (2016)

30. Characteristic peculiarity of mechanic plant tissues is that they consist mainly of dead cells, but there is one type of mechanic tissues consisting of living cells. Which of the listed mechanic tissues contains the living protoplast?
A. Collenchyme
B. Scleroids
C. Libriform
D. Perivascular fibers
E. Phloem fibers (2010)

31. Anatomico-histochemical analysis of a petiole revealed living parenchyma cells with cellulose, angular thickened membranes under the epiderm and above the fascicle. This is typical for:
A. Angular collenchyma
B. Spongy perenchyma
C. Lamellar collenchyme
D. Lacunar collenchyme
E. Bast fibers (2008, 2009)

32. It is known that rhizome and roots of Inula helenium have cavities without distincts inner boundaries filled with essential oils. They are called:
A. Lysigenous receptacles
B. Schizogenous receptacles
C. Resin ducts
D. Segmented lacticifers
E. Non-segmented lacticifers (2008)

33. Microscopic examination of leaf serration revealed secretory structures secreting some liquid. What are these structures called?
A. Hydatodes
B. Nectaries
C. Stomata
D. Glandules
E. Osmophores (2010)

34. Essential oil glandules that consist of 8 secretory cells placed in 2 lines and 4 tiers are typical for most plants of the following family:
A. Asteraceae
B. Apiaceae
C. Lamiaceae
D. Rosaceae
E. Scrophulariaceae (2007, 2009)

35. Having been studied, conifer wood is determined to be composed of cells with pointed ends and lignified ring-porous cell wall. Therefore, this tissue of conifers is represented only by:
A. Tracheids
B. Vessels
C. Sieve tubes
D. Companion cells
E. Bast fibers (2014)

36. While determining the type and characteristics of conducting bundles of axial organs one should take into account the positional relation between phloem and xylem and…

A. Cambium
B. Procambium
C. Collenchyme
D. Pericycle
E. Phellogen (2012)

37. In a sample studied under a microscope the multilayer palisade (columnar) parenchyma can be clearly seen. Such structure is typical for:
A. Leaf
B. Root
C. Dicotyledon stem
D. Rhizomes of ferns
E. Adventitious roots (2013)

38. Pulp of a needle leaf consists of living tissue with internal ansiform outgrowths of membrane. Along these outgrowths the chloroplasts are placed. Name the type of this leaf's parenchyma:
A. Folded (Plicate)
B. Spongy
C. Palisade
D. Storage
E. Aeriferous (2007)

ANATOMY OF THE VEGETATIVE ORGANS

39. The study of the main root ontogenesis shows that it has developed from:
A. Radicle
B. Apical meristem
C. Pericycle
D. Lateral meristem
E. Intercalary meristem (2015)

40. What type of conducting bundles is characteristic of all root zones of one seeded plants?
A. Radical
B. Central phloem
C. Central xylem
D. Bilateral
E. Collateral (2012, 2013, 2015, 2016)

41. When root is studied under microscope, one leading bundle is detected in its maturation zone, where xylem and phloem areas interchange radially. It can be concluded that this bundle type is:
A. Radial
B. Collateral
C. Bicollateral
D. Amphicribal
E. Amphivasal (2014)

42. Microscopic examination of absorption zone of primary root cortex revealed that it consisted mainly of loose multilayer living parenchyma with amyloid granules. It is called:
A. Mesoderm
B. Endoderm
C. Exoderm
D. Collenchyme
E. Phellogene (2012)

43. Microscopic analysis of a root revealed the following features: primary structure, endodermal cells with horseshoe-shaped areas, radial fascicle of the central cylinder, more than six xylem rays. Such root structure is typical for the following plants:
A. Angiosperms, monocotyledons
B. Angiosperms, dicotyledons
C. Gymnosperms, conifers
D. Gymnosperms, gnetalians
E. Pteridosperms (2013)

44. Section of Helianthus anus root has a secondary fascicular formation, it means that the section was made in the zone of:
A. Fortification and conduction
B. Growth and elongation
C. Absorption
D. Fissionable cells
E. Root cap (2007, 2008)

45. A section of beet root has several layers of cambium that form additional conducting bundles. What is the structure of the given root?
A. Secondary, polycambial
B. Secondary monocambial
C. Primary, polycambial
D. Primary, monocambial
E. Transitional, monocambial (2010)

46. On the photomicrograph of a herbaceous plant stem the bicollateral vascular bundles are clearly visible. The microspecimen represents the stem of the following plant:
A. Pumpkin
B. Rye
C. Flax
D. Corn
E. Solomon's seal (2013)

MORPHOLOGY OF THE VEGETATIVE AND GENERATIVE ORGANS

47. A student analyzes an axial plant organ characterized by radial symmetry, unlimited growth, and positive geotropism. It provides nutrition, vegetative propagation, anchorage of plant in the soil. This organ can be identified as:
A. Root
B. Stem
C. Leaf
D. Rhizome
E. Seed (2012, 2013, 2014, 2015)

48. Comparison of the underground organs of herbaceous plants revealed that in the bipartite annuals the following organ prevails:
A. Main root system
B. Adventitious root system
C. Rhizome
D. Bulb
E. Corm (2013)

49. When studying white mistletoe - perennial medicinal semi-parasite plant it was revealed that, its embryonic root buries into higher plant stem tissue and reaches vascular tissue system. This type of roots is called:
A. Haustorial roots
B. Photosynthetic roots
C. Aerating roots
D. Contractile roots
E. Aerial roots (2014)

50. During morphological description of common periwinkle it was defined that it has shoot that trails on the ground and takes root. It allows to characterize such shoot as:
A. Creeping
B. Recumbent
C. Twining
D. Scandent
E. Tenent (2007)

51. Apical bud of a sprout stops its development early and growth is realized due to two lateral buds placed opposite one another under the apex. Such ramification is called:
A. Pseudodichotomic
B. Equidichotomic
C. Monopodial
D. Nonequidichotomic
E. Bush (2008)

52. Examination of a medicinal plant revealed that its underground organ had nodes, internodes, cataphylls, gemmae and secondary roots. Therefore, this underground organ is:
A. Rhizome
B. Storage root
C. Root bulb
D. Stolon
E. Tuber (2009)

53. Name the above-ground sprout modifications that develop from lateral buds, are situated in leaf angles or inflorescences, and take part in vegetative reproduction:
A. Bulbils
B. Above-ground tubers

C. Cladodes
D. Tendrils
E. Thorns (2015)

54. A plant has erect stem with only one leaf growing from each node. What phyllotaxy is characteristic of this plant?
A. Alternate
B. Opposite
C. Verticillate
D. Dichotomous
E. Parallel (2015)

55. Each stem node of white deadnettle (*Lamium album*) has two leaves, which grow perpendicularly to the leaves of the previous node. Such leaf arrangement is called:
A. Cross-opposite
B. Spiral
C. Verticillate
D. Rosette
E. Leaf mosaic (2011)

56. During the morphologic analysis of various plant leaves the students found the leaves, whose length of the leaf blade is 5 times more than its width. Specify the shape of the leaf blade:
A. Linear
B. Elliptical
C. Lanceolate
D. Ovoid
E. Reniform (2013)

57. Quercus robur leaves have the following type of lamina shape and division:
A. Pinnatilobate
B. Trilobate
C. Pinnatipartite
D. Palmatilobate
E. Palmatipartite (2014, 2015, 2016)

58. Examination of a medicinal herb revealed that its leaves were divided down to the base of the leaf blade with segments radiating from a common point in a fan manner. These leaves are:
A. Palmatisected
B. Pinnatisected
C. Palmatipartite
D. Pinnatipartite
E. Palmatilobate (2009)

59. Leaves of Aesculus hippocastanum are composed of 5-7 assidenous folioles that are oblong-obovate shaped with dentate-serrated margin, are attached to petiole (leaf rachis), and therefore are:
A. Palmately compound
B. Pinnately compound
C. Pinnatisected
D. Palmatisected
E. Palmatilobed (2014)

60. During morphological analysis of lily-of-the-valley (Convallaria majalis) leaf it was noted that lamina has wide elliptic shape and numerous veins are parallel to leaf margin and merge only at the leaf point. What is this venation type called?
A. Arcuate
B. Parallel
C. Palmate
D. Pinnate-reticulate
E. Dichotomous (2014)

61. Morphological analysis of leaves revealed that each vein runs along the lamina separately and the veins join together only at the top of the lamina. This kind of venation is called:
A. Arcuate
B. Pinnate
C. Dichotomous
D. Palmate (2011)

62. Leaves of a plant under examination have a distinct main nerve in the middle with regularly diverging side nerves. What type of nervation is it?
A. Pinnate
B. Digitate

C. Arcwise
D. Parallel
E. Dichotomic (2007)

63. A leaf of a plant under examination has a membranous ochrea wrapped around the internode base. Presence of such modified stipules is the diagnostic feature of the following family:
A. Polygonaceae
B. Gramineae
C. Rosaceae
D. Legumes
E. Solanaceae (2008, 2011)

64. During practical field session students have detected plant with diversity of leaves that differ by their placement on stem, parts development, size, shape, lamina division. This phenomenon is called:
A. Heterophylly
B. Phyllotaxy
C. Metamorphosis
D. Leaf mosaic
E. Venation (2014)

65. Colored or white component of double perianth, which consists of petals, is a:
A. Corolla
B. Flower cup
C. Androecium
D. Gynoecium
E. Perigonium (2016)

66. Corolla of a zygomorphic hermaphroditic flower consists of 5 petals: the largest one is called the banner, the two lateral petals are called the wings, and the two fused petals forming the keel. Such corolla is characteristic of medicinal plants of Leguminosae family. Name the type of corolla:
A. Papilionaceous
B. Labiate
C. Saucer-shaped
D. Funnelform
E. Tubular (2015, 2016)

67. A plant under examination has papilionaceous flower. This plant belongs in the family:
A. Fabaceae
B. Scrofulariaceae
C. Ranunculaceae
D. Lamiaceae
E. Asteraceae (2012, 2013)

68. Corolla of the origanum flower is zygomorphic, sympetalous and consists of a tube and two limbs. The upper limb is bilobate and the lower is trilobate. Such corolla is called:
A. Bilabiate
B. Unilabiate
C. Lingulate
D. Thimble-like
E. – (2010, 2011)

69. Students should identify the following to determine the sex of a flower:
A. Stamens and pistils
B. Flower cup and corolla
C. Pedicle and receptacle
D. Symmetry
E. Colour and type of indumentum (2015, 2016)

70. A flower has the androecium consisting of two long and two short stamens. Therefore the flower's androecium is:
A. Didynamous
B. Tetradynamous
C. Diadelphous
D. Tetradelphous
E. Polyadelphous (2010, 2011)

71. Androecium of *Brassica oleracea* flower has six stamens, with four stamens of inner circle longer than two stamens of outer circle. What is this type of androecium called?
A. Tetradynamous
B. Didynamous
C. Diadelphous

D. Monadelphous
E. Polydelphous (2014)

72. It is known that a seed without endosperm and perisperm has its nutrients accumulated in:
A. Embryo cotyledons
B. Embryo root
C. Embryo stalk
D. Gemma
E. Seed coat (2010)

73. Monopodial inflorescences of plantain (spike) and maize (ear) have one trait in common: their flowers are placed on the well-developed principal axis. This is typical for the following inflorescences:
A. Simple botrioid
B. Complex botrioid
C. Cymose
D. Aggregate
E. Thyrsoid (2008)

74. A sour cherry has shortened principal axis of inflorescence, pedicles have nearly equal length and emerge like from the same point. It is typical for the following type of inflorescence:
A. Umbel
B. Corymb
C. Truss
D. Ear
E. Anthodium (2007)

75. Cherry (Prunus cerasus) inflorescence has short floral axis and approximately same length pedicles emerging from one point. It is characteristic of the following inflorescence organisation:
A. Umbel
B. Corymb
C. Raceme
D. Spike
E. Head (2014)

76. Inflorescence of Ledum palustre has a significantly shortened rachis, connivent nodes, pedicles of the quite similar length. This inflorescence is called:
A.Umbel
B. Glomus
C. Bostryx
D. Spike
E. Ament (2009)

77. Astragalus dasyanthus has sessile flowers gathered into inflorescences with a short thick axis. This inflorescence is called:
A. Capitulum
B. Cyme
C. Truss
D. Spike
E. Head (2012, 2013)

78. Morphological analysis of poplar inflorescence showed that it is a simple monopodial inflorescence: main axis is drooping, the flowers are sessile, unisexual. Specify the type of inflorescence:
A. Catkin
B. Head
C. Capitulum
D. Cyme
E. Panicle (2012, 2013, 2016)

79. During the field practice a student found a plant with disk-shaped structure of its rachis, sessile flowers and husk. This inflorescence is called:
A. Anthodium
B. Spike
C. Spadix
D. Glomus
E. Raceme (2009)

80. Examination of an inflorescence of sweet flag Acorus calamus L. revealed that it was encircled with a covering leaf (spathe) and small sessile flowers grew compactly on the thickened pulpy axis. Such inflorescence is called:
A. Ear
B. Glomus

C. Spike
D. Umbel
E. Corymb (2007)

81. Inflorescence of greater plantain grows out at apex, the main axis is long, and flowers are sessile. This type of inflorescence is called:
A. Spike
B. Panicle
C. Spadix
D. Capitulum
E. Thyrsus (2012)

82. Morphological analysis of an inflorescence revealed that its flowers were attached to the same axis at different levels but due to different length of peduncle they grew in the same plane. Such inflorescence is called:
A. Corymb
B. Anthodium
C. Glomus
D. Umbel
E. Spike (2007, 2010, 2011)

83. The birch has compound inflorescences with drooping main axis bearing dichasia composed of unisexual cells. Therefore, this inflorescence is called:
A. Ament
B. Raceme
C. Spadix
D. Spike
E. Glomus (2009)

84. The fruit of black locust is dry, formed of a single carpel, dehisces by the ventral and dorsal sutures on two sides, the seeds are attached along the ventral suture. Such fruit is called:
A. Legume
B. Siliqua
C. Follicle
D. Capsule
E. Silicula (2013)

85. One of the common characteristics of subfamily Prunoideae a representatives (family Rosaceae) is that their fruit is:
A. Drupe
B. Aggregate-accessory fruit
C. Bacca
D. Pome
E. Pepo (2007, 2010)

86. You need to specify a monocarpous one-seeded fruit with hard scleroid endocarp and soft mesocarp. This fruit is:
A. Monodrupe
B. Legume
C. Silique
D. Capsule
E. Bacca (2008)

87. During determination of fruit type Hypericum perforatum it was found that: the fruit is cenocarpous, dry, opens with valves and contains a big number of seeds. Therefore the fruit of Hypericum perforatum is:
A. Fruitcase
B. Multifollicle
C. Follicle
D. Coenobium
E. Aggregate achene (2007)

88. One of fleshy fruits under examination is characterized by essential oil exocarp, spongy mesocarp and overgrown endocarp consisting of juice sacs. What fruit was examined?
A. Hesperidium
B. Pepo
C. Cinarodium
D. Drupe
E. Bacca (2007, 2008, 2009, 2010, 2011)

89. Datura stramonium has dry many seeded fruits formed by syncarpous gynoecium that dehisce when the valves are broken off. Specify the fruit type:
A. Capsule

B. Follicle
C. Siliqua
D. Coenobium
E. Hesperidium (2013)

90. Dry many-seeded monocarp fruit opens along its ventral suture. It can be identified as:
A. Follicle
B. Legume
C. Nutlet
D. Drupe
E. Capsule (2015)

91. Fruits of the *Apiaceae* family can be identified on the basis of a set of morphological features and presence of the following formation in the pericarp:
A. Essential oil tubules
B. Resin ducts
C. Articulated lacticifers
D. Non-articulated lacticifers
E. Wax strips with stomata (2011)

92. A fruit under examination is pseudomonocarpic, with woody pericarp and one seed. The seed cuticle remains unfused with the pericarp. Such fruit is called:
A. Nut
B. Cremocarp
C. Achenocarp
D. Caryopsis
E. Pseudomonocarpic drupe (2009)

PLANT SYSTEMATIC

93. A seed of a legume contains proteins and fatty oil. Name this legume:
A. Glycine hispida
B. Vaccinium myrtillus
C. Sinapis alba
D. Astragalus dasyanthus
E. Datura stramonium (2015)

94. Both scientific and folk medicine uses medicinal plant Glycyrrhiza glabra L. What part of the plant is harvested?
A. Roots and rhizomes
B. Foliage
C. Inflorescence
D. Grass
E. Seeds (2016)

95. Examination of five herbarium specimens of medicinal plants showed that one of them belonged to the legume family, namely:
A. Glycyrhiza glabra
B. Atropa belladonna
C. Hyoscyamus niger
D. Datura stramonium
E. Solanum dulcamara (2009, 2011)

96. One of the plants under examination has a zygomorphic flower and papilionaceous corolla. This plant is called:
A. Melilotus officinalis
B. Mentha piperita
C. Valeriana officinalis
D. Urtica dioica
E. Rosa canina (2010)

97. When studying five herbarium specimen of medicinal plants, it was determined that one of them belongs to *Fabaceae* family.Which one is it?
A. *Ononis arvensis*
B. *Atropa belladonna*
C. *Hyoscyamus niger*
D. *Datura stramonium*
E. *Solanum dulcamara (2014)*

98. A medicinal plant under examination has a pistil formed by a big number of carpels, and a fruitcase that opens with small orifices. This is:
A. Papaver somniferum

B. Chelidonium majus
C. Zea mays
D. Mentha piperita
E. Sanquisorba officinalis (2007)

99. A medicinal herb under examination has the capsule fruit with lacticifers and small openings. This herb is called:
A. Papaver somniferum
B. Chelidonium majus
C. Zea mays
D. Mentha piperita
E. Sanquisorba officinalis (2010)

100. A plant under examination has a storage root; its stems are ribbed and channelled, hollow; leaves are many times pinnatisected, leafstalk has a boot; inflorescence is the compound umbel; fruit is the cremocarp with essential oil canaliculi in the pericarp. Such characteristics are typical for the plants of the following family:
A. Apiaceae
B. Solanaceae
C. Fabaceae
D. Brassicaceae
E. Scrophulariaceae (2007, 2011)

101. The analyzed plant has hollow ribbed stems, compound umbel inflorescence, schizocarpic fruit (cremocarp) and is rich in essential oils, which is a characteristic of:
A. Apiaceae
B. Fabaceae
C. Ericaceae
D. Brassisaceae
E. Asteraceae (2012)

102. Which representative of the Rosaseae family has spring bloom in form of white, fragrant flowers gathered in pendulous racemes at the ends of short shoots?
A. Padus rasemosa (P. avia)
B. Potentilla erecta
C. Sorbus aucuparia
D. Cerasus vulgaris
E. Crataegus sanquinea (2013)

103. Many species of wild rose are a source of vitamins, fatty oils and herbal material. Specify the juicy pseudocarps that are procured as herbal raw material:
A. Rose hips
B. Coenobia
C. Hesperides
D. Aggregate-accessory fruits
E. Cenocarp stone-fruits (2013)

104. Which of the following plants has pome fruit?
A. Sorbus aucuparia
B. Prunus domestica L.
C. Amygdalus communis
D. Rosa majalis
E. Prunus padus (2008)

105. A leaf of a plant under examination has a membranous ocrea that envelops the bottom of internode. Presence of such modified stipules is a diagnostic sign of the following family:
A. Buckwheat
B. Gramineae
C. Rosaceae
D. Legumes
E. Solanaceae (2007)

106. A plant under study has stipules fused together and thus forming a tight tube - ochrea, that is a diagnostic feature of the following family:
A. *Polygonaceae*
B. *Gramineae*
C. *Rosaceae*
D. *Papaveraceae*
E. *Clusiaceae (2013)*

107. *Arctostaphylos uva ursi, Vaccinium vitis ideae, Vaccinium myrtillus* life forms can be defined as:
A. Small shrub (fruticulus)

B. Vine
C. Grass
D. Shrub (frutex)
E. Subshrub (suffrutex, semifrutex) (2014)

108. A species of Ericaceae family is characterized by the following type of leaves: alternate leaf arrangement, short footstalk, leathery, elliptic or obovate with retuse tip, downturned edges; upper surface is dark-green, lower surface is light-green with punctate glandules. Name this species:
A. Vaccinium vitis-idaea
B. Arctostaphilos uva-ursi
C. Vaccinium oxycoccus
D. Vaccinium myrtillus
E. Ledum palustre (2016)

109. A cultivated plant has green berrylike fruit and underground sprout modifications - tubers. The described plant is:
A. Solanum tuberosum
B. Convalaria majalis
C. Polygonatum odoratum
D. Atropa belladonna
E. Solanum lycopersicum (2015)

110. Bacca fruit is typical for the following representative of Solanaceae family:
A. Atropa belladonna
B. Hyoscyamus niger
C. Datura stramonium
D. Nicotiana tabacum
E. Datura innoxia (2008, 2009)

111. An essential oil plant has a tetraquetrous stem, flowers with bilabiate corolla, its fruit is coenobium. These signs are typical for the following family:
A. Lamiaceae
B. Papaveraceae
C. P olygonaceae
D. Solanaceae
E. Scrophulariaceae (2016)

112. If aromatic secretory-downy plant has square in cross section stem, spike inflorescence made up from whorled dichasia, bilabiate corolla and its fruit consists of four nutlets, it probably belongs to the following family:
A. *Lamiaceae*
B. *Scrofulariaceae*
C. *Brassicaceae*
D. *Apiaceae*
E. *Solanaceae (2014)*

113. When studying the diagnostic features of Origanum vulgare, the students noticed that the plant had a compound monopodial inflorescence. It is called:
A. Corymbose panicle
B. Cluster of heads
C. Cincinnus
D. Bostyx
E. Head (2013)

114. Choose a plant whose apical sprouts are used in medical practice for sedative drug production:
A. Leonurus cardiaca
B. Glycyrrhiza glabra
C. Digitalis purpurea
D. Ledum palustre
E. Fagopyrum sagittatum (2010, 2011)

115. Crop production includes cultivation of medicinal essential oil plants that don’t grow in Ukraine wildely, namely Mentha piperita, Ortosiphon stamineus, and also:
A. Salvia officinalis
B. Origanum vulgare
C. Leonurus cardiaca
D. Thymus serpyllum
E. Leonurus quinquelobatus (2008)

116. The figwort family Scrophulariaceae includes a biennial plant up to 1,5 m high, with golden-yellow flowers gathered in spiked inflorescences. The flowers have five stamens. Specify this plant:
A. Verbascum flomoides

B. Digitalis purpurea
C. Digitalis grandiflora
D. Digitalis lanata
E. Digitalis Ferruginea (2013)

117. Analysis of a plant revealed essential oil glands with several layers of cells arranged in pairs. This allows for the possibility that the plant relates to the family:
A. *Asteraceae*
B. *Scrofulariaceae*
C. *Solanaceae*
D. *Apiaceae*
E. *Lamiaceae (2013)*

118. A herbaceous plant under examination has segmented lacticifers with anastomoses filled with white latex. This is typical for:
A. Taraxacum officinale
B. Urtica dioica
C. Chelidonium majus
D. Anethum graveolens
E. Thymus vulgaris (2008)

119. Rhizome of a species belonging to the Asteraceae family is polycephalous, succulent, has lysigenous cavities, accumulates inulin. Such underground organ is characterisic of:
A. Inula helenium
B. Hyoscyamus niger
C. Digitalis grandiflora
D. Sorbus aucuparia
E. Helianthus annuus (2015, 2016)

120. Which medicinal plant of the Asteraceae family has only disk flowers in the flowerhead?
A. Three-part beggarticks (Bidens tripartita)
B. Dandelion (Taraxacum officinale)
C. Echinacea purpurea
D. Cornflower (Centaurea cyanus)
E. Common yarrow (Achillea millefolium) (2012, 2013)

121. An annual plant of the Asteraceae family has tripartite leaves, apical anthodia with tubular flowers, flat achenocarps that are tenent due to 2-3 bristly serratures. This plant is:
A. Bidens tripartita
B. Chamomilia recutita
C. Centaurea cyanus
D. Echinacea purpurea
E. Artemisia vulgaris (2008)

122. One of the herbarium specimens of medicinal plants relates to the Asteraceae family. This plant is:
A. Arctium lappa
B. Atropa belladonna
C. Cassia acutifolia
D. Urtica dioica
E. Rubus idaeus (2008, 2009, 2010)

123. Calendula officinalis which a representative of the aster family is characterized by the following inflorescence type:
A. Flowerhead
B. Umbel
C. Catkin
D. Glome
E. Cyme (2012)

124. In the practice of harvesting herbal raw material of Asteraceae family the term "flowers" means both individual flowers and inflorescences. However, the notion of "flowers" is botanically correct only for:
A. Centaurea cyanus
B. Gnaphalium uliginosum
C. Arnica montana
D. Echinop sritro
E. Bidens tripartita (2012, 2015)

125. You are studying the silvery downy plant of Asteraceae family, which is rich with essential oils and bitters. Harvested are apical sprouts with panicle of small round flower heads. This plant is:
A. Artemisia absinthium
B. Arctium lappa

C. Bidens tripartita
D. Calendula officinalis
E. Chamomilla recutita (2014, 2015, 2016)

126. Weeds can be harmful for populace's wellbeing. Particularly, allergic reactions are often caused by the following plant in its period of blossoming:
A. Ambrosia artemisiifolia
B. Equisetum arvense
C. Stellaria media
D. Erigeron canadensis
E. Taraxacum officinale (2016)

127. A herb under analysis relates to the Malvaceae family and is used as an expectorant and coating agent. The stem is erect, with simple palmate three to five lobed leaves, large pink flowers growing in short panicles. The herb has schizocarpic fruit - a capsule. Identify the plant:
A. Althaea officinalis
B. Fragaria vesca
C. Potentilla erecta
D. Tussilago farfara
E. Thymus serpyllum (2011)

128. During identification of a perennial herb of Ranunculaceae family it was found to have: apical flowers of regular form up to 6 cm in diameter; 5 downy violetand-green calyx lobes of irregular serrate form; up to 20 bright yellow glossy petals without nectarostigma. What plant is it?
A. Adonis vernalis
B. Helleborus purpurascens
C. Ranunculus acris
D. Delphinium elatum
E. Aconitum napellus (2010, 2011)

129. Prevailing plants of a foliage forest are monoecious high trees coated with thick dark-grey rind with deep cracks. Their leaves are short-petiolar, pinnatilobate. Their fruit is acorn. Therefore, the dominating species is:
A. Quercus robur
B. Robinia pseudoacacia
C. Aesculus hippocastanum
D. Tilia cordata
E. Betula verrucosa (2009)

130. Diaphoretic herbal tea includes dichasial cymes with light-yellow, oblong, wing-like, squame-lliferous perianth. The flowers are fragrant, yellowish. These inflorescences belong to:
A. Tilia cordata
B. Viburnum opulus
C. Robinia pseudoacacia
D. Mentha piperita
E. Padus avium (2012)

131. To make diaphoretic herbal tea the following inflorescences are used: 3-15 corymbose dichasia with light-yellow oblong wing-shaped membranous recaulescent squamella that fuses halfway with floral axis. Flowers are fragrant, yellowish. These inflorescences belong to:
A. *Tilia cordata*
B. *Viburnum opulus*
C. *Robinia pseudoacacia*
D. *Mentha piperita*
E. *Padus avium (2014)*

132. It is known that leaves of most gymnosperm species are represented by needles. Which one of the species listed below has macropodous leathery leaves with solid flabellate lamina, dichotomous venation and one or several notches along the upper margin?
A. Ginkgo biloba
B. Cedrus libani
C. Juniperus communis
D. Picea abies
E. Abies sibirica (2014)

133. A common species of the Pinaceae family is a tall, evergreen, shade-enduring tree. The needles are solid, prickly, quadrangular in cross-section, spirally arranged. This tree is:
A. Picea abies
B. Larix sibirica
C. Pinus sylvestris
D. Juniperus communis

E. Ephedra equisetina (2012)

134. A higher nonvascular plant has distinct alternation of dominant sexual (gametophyte) and reduced asexual (sporophyte) generations. This indicates that the plant belongs to the following division:
A. Bryophyta
B. Lycopsida
C. Equisetophyta
D. Pteridophyta
E. Gymnospermae (2009, 2010, 2011)

135. Spore and pollen analysis revealed in the pollen some tetrahedral spores with a semi-circular base and a reticular surface, which may belong to:
A. Lycopodiophyta
B. Equisetiphyta
C. Bryophyta
D. Polypodiophyta
E. Pinophyta (2012, 2013, 2015, 2016)

136. A plant under examination has a rhizome, big pinnatisected leaves with sori and sporangia on their undersurface. According to this data the plant should be related to one of the following divisions:
A. Polypodiophyta
B. Pinophyta
C. Magnoliophyta
D. Eguisetophyta
E. Lycopodiophyta (2007)

137. A macroscopic alga of brown color with trunk, rhizoids and foliaceous part rich in alginates and iodine is ranked with genus of:
A. Laminaria
B. Chlorella
C. Chlamydomonas
D. Sirogira
E. Ulothrix (2007, 2009)

138. It is known that cells of *Chlorophyta* division representatives have chromatophores of various shapes. We can observe ribbon-like chromatophores in the species of the following genus:
A. *Spyrogyra*
B. *Volvox*
C. *Clorella*
D. *Chlamidomonas*
E. *Spirulina (2014)*

139. Representatives of this division propagate vegetatively by special formations: isidia, soredia, lobules. Name this division.
A. *Lichenes*
B. *Basidiomycota*
C. *Equisetophyta*
D. *Lycopodiophyta*
E. *Polypodiophyta (2014)*

Ecology

140. Common nettle, hop, black elderberry relate to the plants that require soils rich in nitrogen compounds, that is, such plants are called:
A. Nitrophytes
B. Nitrophobes
C. Calciphiles
D. Calciphobes
E. Halophytes (2013, 2015)

141. Stinging nettle *(Urtica dioica)*, hop *(Humulus lupulus)* and common elder *(Sambucus nigra)* are plants that require high nitrogen content in soil, which means that they are:
A. Nitrophilous
B. Nitrophobous
C. Calciphilous
D. Calciphobous
E. Halophytic (2014)