KROK TESTS 2007-2011
PLANT CELL

1. 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)

2. 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)

3. 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)

4. 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)

5. 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)

6. 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)

7. 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)

8. 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

9. 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)

10. 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)

11. 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)

12. 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)

13. 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)

14. 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)

15. 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)

16. 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)

17. 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)

18. 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

19. 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)

20. 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)

MORPHOLOGY OF THE VEGETATIVE AND GENERATIVE ORGANS

21. 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)

22. 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)

23. 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)

24. 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)

25. 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)

26. 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)

27. 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)

28. 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)

29. 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)

30. 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)

31. 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)

32. 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)

33. 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)

34. 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)

35. 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)

36. 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)

37. 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)

38. 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)

39. 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)

40. 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)

41. 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)

42. 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)

43. 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)

44. 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

45. 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)

46. 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)

47. 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)

48. 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)

49. 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)

50. 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)

51. 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)

52. 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)

53. 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)

54. 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)

55. 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)

56. 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)

57. 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)

58. 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)

59. 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)

60. 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)

61. 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)

62. 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)

63. 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)