1. Microscopic examination of primary cortex of a root in its absorption zone revealed that it consisted mainly of multilayer loose living parenchyma with amyloid granules. It is called:

a. Collenchyme
b. Phellogene
c. Endoderm
d. Exoderm
e. Mesoderm

2. 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. Pinophyta
b. Eguisetophyta
c. Lycopodiophyta
d. Polypodiophyta
e. Magnoliophyta

3. Morphological analysis of an inflorescence revealed that its flowers were attached to the same axis at different levels but due to the various length of peduncle they grew in the same plane. Such inflorescence is called:

a. Spike
b. Corymb
c. Glomus
d. Anthodium
e. Umbel

4. 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. Arcwise
c. Dichotomic
d. Parallel
e. Digitate

5. An essential oil plant under examination has tetraquetrous stalk, flowers with bilabiate corolla, coenobium fruit. These characteristics are typical for the following family:

a. Lamiaceae
b. Polygonaceae
c. Scrophulariaceae
d. Solanaceae
e. Papaveraceae

6. 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. Spike
c. Corymb
d. Umbel
e. Glomus

7. Hop sprouts wind around a support and climb upwards. That means that they are:

a. Arrect
b. Recumbent
c. Creeping
d. Tenent
e. Trailing

8. Pulp of a needle leaf consists of living tissue with inner ansiform protuberances of membrane and

chloroplasts along them. What is type of this leafs parenchyma?

a. Storage
b. Aeriferous
c. Spongioid
d. Palisade
e. Plicate

9. 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. Lingulate
b. Unilabiate
c. Bilabiate
d. Thimble-like
e. -

10. 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. Fabaceae
c. Scrophulariaceae
d. Brassicaceae
e. Solanaceae

11. One of the examined soft fruits is characterized by essential-oil exocarp, spongioid mesocarp and overgrown endocarp that consists of juice saccules. What fruit was under examination?

a. Multicoccus
b. Pepo
c. Hesperidium
d. Drupe
e. Bacca

12. 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. Resin ducts
c. Nonsegmented lacticifers
d. Segmented lacticifers
e. Schizogenous receptacles

13. 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. Truss
c. Anthodium
d. Ear
e. Corymb

14. On the root section of Helianthus annuus a secondary fascicular structure was found. This means that the section was made in the zone of:

a. Dividing cells
b. Root cap (pileorhiza)
c. Growth and distension
d. Absorption
e. Fixation and conduction

15. Examination of a root revealed a tissue that has root fibrils and doesnt have stomata and cuticle.

What tissue is it?

a. Periderm
b. Epiderm
c. Epiblema
d. Endoderm
e. Exoderm

16. 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 violet-and-green calyx lobes of irregular serrate form; up to 20 bright yellow glossy petals without nectarostigma. What plant is it?

a. Helleborus purpurascens
b. Delphinium elatum
c. Aconitum napellus
d. Adonis vernalis
e. Ranunculus acris

17. A herbaceous plant under examination has segmented lacticifers with anastomoses filled with white latex. This is typical for:

a. Thymus vulgaris
b. Taraxacum officinale
c. Chelidonium majus
d. Urtica dioica
e. Anethum graveolens

18. Underneath the stem epidermis some layers of living perenchymal cells were found. The cells contained chloroplasts and had cellulose membranes with thickened angles. This tissue is called:

a. Storage parenchyme
b. Chlorophyll-containing parenchyme
c. Lacunar collenchyme
d. Lamellar collenchyme
e. Angular collenchyme

19. 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. Primary, polycambial
c. Transitional, monocambial
d. Primary, monocambial
e. Secondary monocambial

20. 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. Xanthophylls
c. Chlorophylls
d. Phycobilins
e. Carotins

21. 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. Cambium
c. Protoderm
d. Pericycle
e. Procambium

22. Which of the following plants has pome fruit?

a. Rosa majalis

b. Prunus padus
c. Prunus domestica L
d. Amygdalus communis
e. Sorbus aucuparia

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. Root bulb
c. Tuber
d. Stolon
e. Storage root

24. 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. Gymnospermae
b. Bryophyta
c. Equisetophyta
d. Lycopsida
e. Pteridophyta

25. 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. Caryopsis
b. Pseudomonocarpic drupe
c. Cremocarp
d. Achenocarp
e. Nut

26. It is known that a seed without endosperm and perisperm has its nutrients accumulated in:
a. Gemma
b. Seed coat
c. Embryo root
d. Embryo stalk
e. Embryo cotyledons

27. The birch has compound inflorescences with drooping main axis bearing dichasia composed of unisexual cells. Therefore, this inflorescence is called:
a. Spadix
b. Raceme
c. Ament
d. Spike
e. Glomus

28. When studying a stem covered with periderm a researcher came to conclusion that gaseous exchange takes place through:
a. Throughput cells
b. Hydatodes
c. Stomata
d. Pores
e. Lenticels

29. 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. Monopodial
b. Equidichotomic
c. Pseudodichotomic

d. Nonequidichotomic
e. Bush

30. 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. Plastids
c. Microbodies
d. Mitochondrions
e. Endoplasmic reticulum

31. 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. Calcium oxalate crystals
b. Starch granules
c. Drops of fatty oil
d. Aleurone grains
e. Insulin crystals

32. 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. Aesculus hippocastanum
c. Betula verrucosa
d. Tilia cordata
e. Robinia pseudoacacia

33. During determination of fruit type Hypericum perforatum it was found that: the fruit is coebocarpous, dry, opens with valves and contains a big number of seeds. Therefore the fruit of Hypericum perforatum is:
a. Aggregate achene
b. Fruitcase
c. Follicle
d. Multifollicle
e. Coenobium

34. A flower has the androecium consisting of two long and two short stamens. Therefore the flowers androecium is:
a. Diadelphous
b. Tetradynamous
c. Didynamous
d. Tetradelphous
e. Polyadelphous

35. Microscopic examination of leaf serration revealed secretory structures secreting some liquid. What are these structures called?
a. Nectaries
b. Glandules
c. Osmophores
d. Hydatodes
e. Stomata

36. 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. Spongy perenchyma
b. Lacunar collenchyme
c. Bast fibers

d. Angular collenchyma
e. Lamellar collenchyme

37. Microscopic examination of ground tissue of a small branch revealed cork and felloderm. These are the derivates of:
a. Cambium
b. Protoderm
c. Pericycle
d. Phellogen
e. Procambium

38. A big brown alga has a stipe, rhizoids and laminae rich in alginates and iodine. It belongs to the following genus:
a. Chlorella
b. Spirogira
c. Ulothrix
d. Laminaria
e. Chlamydomonas

39. 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. Styloid
b. Cystolith
c. Druse
d. Raphide
e. Single crystal

40. While examining structure of a root the students payed attention to an area where the superficial cells formed root fibrils. What root zone is it?
a. Extension
b. Cell division
c. Suction
d. Conduction
e. Pileorhiza

41. Microscopical examination of a leaf revealed water stomata on its serration. These stomata are for exudation of liquid-drop moisture. This process is called:
a. Gas exchange
b. Transpiration
c. Photosynthesis
d. Guttation
e. Internal secretion

42. An essential oil plant under examination has a square stem, flowers with bilabiate corolla, coenobium fruit. These characteristics are typical for the following family:
a. Scrophulariaceae
b. Lamiaceae
c. Polygonaceae
d. Papaveraceae
e. Solanaceae

43. 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. Spike
b. Glomus
c. Raceme
d. Anthodium

e. Spadix

44. Destruction of intercellular substance and cell breakaway in overripe fleshy fruits is a result of:
a. Gummosis
b. Maceration
c. Mineralization
d. Lignification
e. Sliming

45. As a result of staining of a plant microslide with Sudan III solution the cell membranes turned pink. This indicates the presence of:
a. Cellulose
b. Pectin
c. Hemicellulose
d. Suberin
e. Lignin

46. 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. Suberin
b. Lignin
c. Cellulose
d. Pectin
e. Hemicellulose

47. 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. Chamomilia recutita
b. Echinacea purpurea
c. Artemisia vulgaris
d. Bidens tripartita
e. Centaurea cyanus

48. Inflorescence of Ledum palustre has a significantly shortened rachis, connivent nodes, pedicles of the quite similar length. This inflorescence is called:
a. Bostryx
b. Glomus
c. Umbel
d. Spike
e. Ament

49. One of the common characteristics of subfamily Prunoidea representatives (family Rosaceae) is that their fruit is:
a. Pepo
b. Drupe
c. Bacca
d. Aggregate-accessory fruit
e. Pome

50. Crop production includes cultivation of medicinal essential oil plants that dont grow in Ukraine wildely, namely Mentha piperita, Ortosiphon stamineus, and also:
a. Thymus serpyllum
b. Leonurus quinquelobatus
c. Origanum vulgare
d. Leonurus cardiaca
e. Salvia officinalis

51. Essential oil glandules consisting of 8 secretory cells arranged in two rows and four tiers can be be found in most plants of the following family:

a. Lamiaceae
b. Apiaceae
c. Asteraceae
d. Rosaceae
e. Scrophulariaceae

52. Examination of five herbarium specimens of medicinal plants showed that one of them belonged to the legume family, namely:
a. Atropa belladonna
b. Datura stramonium
c. Solanum dulcamara
d. Glycyrhiza glabra
e. Hyoscyamus niger

53. Bacca fruit is typical for the following representative of Solanaceae family:
a. Hyoscyamus niger
b. Nicotiana tabacum
c. Datura innoxia
d. Atropa belladonna
e. Datura stramonium

54. One of the plants under examination has a zygomorphic flower and papilionaceous corolla. This plant is called:
a. Valeriana officinalis
b. Mentha piperita
c. Melilotus officinalis
d. Urtica dioica
e. Rosa canina

55. 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. Root cap (pileorhiza)
b. Endoderm
c. Epiderm
d. Epiblem
e. Periderm

56. A medicinal herb under examination has the capsule fruit with lacticifers and small openings. This herb is called:
a. Chelidonium majus
b. Mentha piperita
c. Sanquisorba officinalis
d. Papaver somniferum
e. Zea mays

57. 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. Anisocytic
c. Paracytic
d. Anomocytic
e. Diacytic

58. 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. Cymose
b. Complex botrioid
c. Simple botrioid

d. Aggregate
e. Thyrsoid

59. A leaf has glumaceous ochrea. It clasps bottom of internode and is a modificated stipule. This is diagnostic sign of the following family:
a. Gramineae
b. Legumes
c. Solanaceae
d. Polygonaceae
e. Rosaceae

60. A citrus fruit is characterized by the glandular exocarp, spongiose mesocarp and overgrown endocarp consisting of juice sacs. Such fruit is called:
a. Hesperidium
b. Pod
c. Bacca
d. Drupe
e. Legume

61. You need to specify a monocarpous one-seeded fruit with hard scleroid endocarp and soft mesocarp. This fruit is:
a. Capsule
b. Bacca
c. Legume
d. Silique
e. Drupe

62. One of the herbarium specimens of medicinal plants relates to the Asteraceae family. This plant is:
a. Urtica dioica
b. Rubus idaeus
c. Atropa belladonna
d. Cassia acutifolia
e. Arctica lappa

63. 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. Palmatipartite
b. Pinnatisected
c. Palmatisected
d. Pinnatipartite
e. Palmatilobate

64. 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. Cellulose
b. Fatty oil
c. Starch
d. Protein
e. Inulin

65. 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. Libriform
b. Scleroids
c. Collenchyme
d. Perivascular fibers

e. Phloem fibers

66. Choose a plant whose apical sprouts are used in medical practice for sedative drug production:

a. Leonurus cardiaca

b. Digitalis purpurea

c. Fagopyrum sagittatum

d. Ledum palustre

e. Glycyrrhiza glabra