

## VITAMINS. ORGANIC ACIDS.

1. The quality of herbal raw material depends on the harvesting period. Specify the appropriate period of the dog rose fruits collection:

*A* \* In autumn, before the first frosts

*B* Early spring

*C* Late spring

*D* In summer

*E* In autumn, after the first autumn frosts

2. During the nettle leaves collection it is possible to get the following admixture:

*A* \* Deadnettle (suck-bottle)

*B* Spring adonis

*C* Lily-of-the-valley

*D* Barberry

*E* Wild strawberry

3. A pharmacy received a plan for horsetail herb collection. Which horsetail species is officinal, used in medicine and should be collected?

*A* \* Herba Equiseti arvensis

*B* Herba Equiseti hyemalis

*C* Herba Equiseti sylvatici

*D* Herba Equiseti pratensis

*E* Herba Equiseti palustris

4. Dog rose fruits contain a lot of ascorbic acid. What temperature should this raw material be dried at?

*A* \* 80–90 °C

*B* Below 40°C

*C* 40–45°C

*D* 50–60°C

*E* The raw material must be used fresh without drying

5. Calendula flowers contain triterpenoids, flavonoids, essential oil, carotenoids. The main condition of drying is the temperature:

*A* \* 40-45°C

*B* Below 40°C

*C* 50-60°C

*D* 80-90°C

*E* The raw material must be used fresh without drying

6. The analysis of dog rose fruits showed its high humidity. What must a pharmacist do in this case?

- A** \* To dry the raw material
- B** To reject the raw material
- C** To return it to the supplier
- D** To send it to a storage
- E** To send it to a factory

7. To heal an acute respiratory disease a doctor prescribed a patient to use diaphoretic herbal tea which contains: I Flores Tiliae; II Fructus Rubi idaei. Point out which families do the plants of this herbal tea belong to:

- A** \* I Tiliaceae; II Rosaceae
- B** I Asteraceae; II Elaeagnaceae
- C** I Tiliaceae; II Asteraceae
- D** I Scrophulariaceae; II Rosaceae
- E** I Elaeagnaceae; II Fabaceae

8. What is the medicinal plant material of sea-buckthorn?

- A** \* Fructus
- B** Herba
- C** Semina
- D** Folia
- E** Cortex

9. Ribes nigrum belongs to the family:

- A** \* Grossulariaceae
- B** Elaeagnaceae
- C** Asteraceae
- D** Apiaceae
- E** Fabaceae

10. During the commodity research analysis of the raw material it was discovered that it consists of whole inflorescences which have a form of baskets up to 5 cm in capituli, with peduncles up to 3 cm long, ligulate and tubular flowers of an intense orange-yellow colour, poorly fragrant smell, salted-bitter taste. It can be concluded that the raw material is the flowers of:

- A** \* Marigold
- B** Chamomile
- C** Hawthorn
- D** Lily of the Valley
- E** Linden

11. During the commodity research analysis of the raw material it was discovered that it consists of herb with flat triangular pods with two narrow partitions, which remind a “purse” or “balalaika” by its shape. It can be concluded that the plant material is:

- A** \* Shepherd's-purse herb
- B** Spring Adonis herb
- C** Lily-of-the-valley herb
- D** Yellow hornpoppy herb
- E** Dog rose fruit

12. At the receipt of raw material to a vitamin factory it is discovered that it contains wrinkled red-orange fruits of sour sweet, slightly astringent taste, up to 3 cm long and up to 1.5 cm in diameter. The fruit contains a lot of shallow, hard, angular yellow seeds. Seeds and the inner surface of fruits are thickly covered with long, hard, setaceous hairs. It was concluded that the raw material is:

- A** \* Dog rose fruits
- B** Mountain ash fruits
- C** High cranberry fruits
- D** Sea-buckthorn fruits
- E** Blackcurrant fruits

13. A doctor advised to take an extract of the shepherd's-purse herb to stop uterine bleeding. Specify the characteristic microscopic indications of the shepherd's-purse leaves:

- A** \* Multiended (stellate), simple and Y-shaped hairs
- B** Thin-walled and thick-walled hairs, excretory channel
- C** Bundled hairs, druses of calcium oxalate, glands
- D** Capitate, retortshaped and stinging hairs, cystoliths, vascular bundles of the nervature
- E** T-shaped hairs at the leaf margin

14. At analyzing the plant material such features were detected: wavy epidermal cells, anisocytic stomatal apparatus, branched hairs with 3, 6, rarer 7 ends, with coarse warty-like surface. Specify the diagnosed MRM:

- A** \* Folium Bursae pastoris
- B** Folium Salviae officinalis
- C** Folium Urticae dioicae
- D** Folium Menthae piperitae
- E** Folium Vitis idaeae

15. At analyzing the plant material such features were detected: polygonal epidermal cells, anomocytic stomatal apparatus, cystoliths, stinging, capitate and retortshaped hairs. Specify the diagnosed MRM:

- A** \* Nettle leaves
- B** Jimson weed leaves
- C** Bitter trefoil leaves
- D** Rusty foxglove leaves

*E* Peppermint leaves

16. The medicinal medicinal herbal tea contains: : Cortex Frangulae, Folia Urticae, Herba Millefolii. By which characteristic the medicinal plant material Folia Urticae can be identified microscopically?

- A* \* Capitate, retortshaped and stinging hairs; cystolyths; vessels of conductive bunch of veins; druses of calcium oxalate
- B* Bast fibres, tracheids, starch, vessels
- C* T-shaped hairs at the margin
- D* Multiended (stellate), simple and Y-shaped hairs
- E* Simple capitate hairs

17. The term “vitamins” was introduced in:

- A* \* 1912 by Funk
- B* 1899 by Pirogov
- C* 1910 by Pavlov
- D* 1905 by Carl Linnaeus
- E* 1907 by Oparin

18. Which of the offered vitamins’ classifications is the most rational?

- A* \* According to the chemical structure
- B* Alphabetic
- C* According to solubility
- D* According to morphological features
- E* According to generic belonging

19. Which acid is vitamin C?

- A* \* Ascorbic acid
- B* Barbituric acid
- C* Nicotinic acid
- D* Folic acid
- E* Picolinic acid

20. A party of the MRM of cinnamon rose was received by a pharmacy’s storehouse. The content of which active substances, according to the Pharmacopoeian requirements, should be analyzed?

- A* \* Ascorbic acid
- B* Flavonoids
- C* Tannins
- D* Anthraquinones
- E* Essential oil

21. The MRM rich in ascorbic acid should be recommended to prevent flu. Specify the MRM that a pharmacist may recommend in this case:

- A** \* Fructus Ribis nigri
- B** Fructus Crataegi
- C** Fructus Aroniae
- D** Fructus Rhamni catharticae
- E** Fructus Myrtilli

22. Some types of the MRM contain carotenoids. Specify the MRM with high content of carotenoids and which is used in the phytoremedies production:

- A** \* Sea-buckthorn fruits
- B** Black currant leaves
- C** Shepherd's-purse herb
- D** Strawberry leaves
- E** Parsley roots

23. A lot of patients suffer from avitaminosis in spring. Specify the MRM that a pharmacist may recommend in this case:

- A** \* Folium Urticae
- B** Folium Althaeae
- C** Folium Menthae
- D** Folium Farfarae
- E** Folium Salviae

24. Galenic medicines of a raw material, which contains vitamins, hydroxycinnamic acids, coumarins, have pronounced anti-hemorrhagic effect and stimulate uterine contractions. Which raw material is used for such medicines' production?

- A** \* Shepherd's-purse herb
- B** Dog rose fruits
- C** Marigold flowers
- D** Sea-buckthorn fruits
- E** European mountain ash fruits

25. A doctor advised a patient to take raspberry extract for an acute respiratory disease. The therapeutic effect of raspberries depends on:

- A** \* The presence of salicylic acid
- B** The content of alkaloids
- C** The presence of vitamins
- D** The content of purine alkaloids
- E** The presence of pectins

26. According to the pharmacopoeia article for the quantitative content of ascorbic acid determination in rosehips the following method is used:

- A* \* Titrimetric method
- B* Colorimetric method
- C* Gravimetry
- D* Chromato-spectrophotometric method
- E* Polarographic method

27. A patient appealed to the pharmacy for treatment of the long-term unhealed skin burn. What phytomedicine can be recommended in this case:

- A* \* Calendula flower
- B* Hawthorn fruit
- C* Motherwort herb
- D* Lily-of-the-valley herb
- E* Valerian rhizome with roots

28. A patient appealed to the pharmacy's phytodepartment with a request to give him diuretic medicine. Which medicinal plant material is it better to use?

- A* \* Herba Equiseti arvensis
- B* Fructus Sophorae japonicae
- C* Herba Leonuri quinquelobati
- D* Cormus Ledi palustris
- E* Radix Araliae

29. The patients with kidney diseases must use extracts of Common horsetail herb under the supervision of doctor, because the medicinal raw material contains the substance which irritates kidney parenchyma. Name this substance:

- A* \* Silicic acid
- B* Glycyrrhizinic acid
- C* Chlorogenic acid
- D* Salicylic acid
- E* Meconic acid

30. Medicine «Lipochromin» is used for:

- A* \* Prophylaxis and treatment of radiation illness
- B* Prophylaxis and treatment of atherosclerosis
- C* Prophylaxis and treatment of immune system diseases
- D* Prophylaxis of avitaminosis
- E* Treatments of hypervitaminosis

31. *Urtica dioica* could be used as:

- A* \* Antihemorrhagic, diuretic and health-improving agent
- B* Granulating
- C* Cholagogue
- D* Stimulative

*E* Hepatoprotective

32. A patient suffers from vitamin C avitaminosis. Which herbal raw material is rich in this vitamin?

- A* \* Fructus Rosae
- B* Cortex Quercus
- C* Rhizoma Tormentillae
- D* Cortex Viburni opuli
- E* Folium Menthae piperitae

33. It is recommended to use vitamin-containing drugs in spring. What is the raw material for vitamin C containing phytomedicines production?

- A* \* Fructus Rosae
- B* Flores Calendulae
- C* Folia Digitalis
- D* Fructus Foeniculi
- E* Radices Glycyrrhizae

34. Cornsilk contains vitamins, fatty acids, essential oils, saponins and other substances and is used as:

- A* \* Diuretic and choleric
- B* Sedative and anticonvulsant
- C* Cardiotonic and antiarrhythmic
- D* Expectorant and antitussive drug
- E* Bactericidal and astringent drug

35. A pharmacy warehouse received a consignment of cinnamon rose. Which compound determines the plant material quality?

- A* \* Ascorbic acid
- B* Tannins
- C* Anthracene derivatives
- D* Essential oils
- E* Coumarins

36. Plant material received by pharmacy warehouse is smooth bright red fruits, oblong-oval shape, with pentagonal area on an apex. Calyx is absent. The walls of fruit are solid, fragile, external surface is bright, wrinkled, inner surface – dull. Inside the fruit there are a lot of small nuts, with long hard hair. Taste is acidulous -sweet; smell is absent. Choose this raw material.

- A* \* Fructus Rosae caninae
- B* Fructus Crataegi
- C* Fructus Sorbi
- D* Fructus Aroniae

**E Fructus Viburni**

37. The raspberry fruit infusion is used as a diuretic and sudorific agent at flu. The raspberry plant material can be substituted by:

**A** \* Flores Tiliae

**B** Flores Crataegi

**C** Herba Chelidonii

**D** Radices Scutellariae

**E** Semina Lini

38. The cholagogue derived from *Rosa canina* fruit is used in treatment of liver and gallbladder diseases. Name this drug:

**A** \* Cholosas

**B** Allochol

**C** Altan

**D** Phytolyt

**E** Chophytol

39. Pharmaceutical depot received a batch of herbal material of cinnamon rose. What substance determines the quality of the raw material?

**A** \* Ascorbic acid

**B** Tannins

**C** Anthracene derivatives

**D** Essential oil

**E** Coumarins

40. Pharmaceutical warehouse received a batch of herbal raw material of cinnamon rose. Under the State Pharmacopoeia, it is required to test this raw material for the following active substances:

**A** \* Ascorbic acid

**B** Flavonoids

**C** Tannins

**D** Anthracenederivatives

**E** Essentialoil

41. Stinging nettle (*Urtica dioica*) leaves are mostly used as a hemostatic in tinctures and liquid extract to treat lung, intestinal, and uterine hemorrhages. What bioactive substance provides hemostatic effect?

**A** \* Vitamin K

**B** Beta-carotene

**C** Rutin

**D** Reserpine

**E** Digitoxin



42. The following fruit was received for analysis: succulent drupes circular or elongated-ellipsoid in shape, 4-12 mm in length. The colour of fruit varies from yellow to dark orange. The smell is faint. The taste is sour-sweet. What plant is it?

- A** \* *Hippophae rhamnoides*
- B** *Ammi majus*
- C** *Aronia melanocarpa*
- D** *Vaccinium myrtillus*
- E** *Coriandrum sativum*

43. Cross-section of the leaf of a medicinal plant shows cystoliths and stinging hairs with a multicellular base and a large cell on the apex that ends in a widened tip that breaks off. What herbal raw material has such microscopic characteristics?

- A** \* *Urtica dioica*
- B** *Capsella bursa-pastoris*
- C** *Alropa belladonna*
- D** *Mentha piperita*
- E** *Origanum vulgare*

44. A factory that manufactures vitamin preparations has received a batch of herbal raw material. It consists of round wrinkled orange-red fruits that taste sweet-sour and slightly tart. The fruits are up to 3 cm long, 1.5 cm in diameter, and are filled with hard small angular yellow nutlets. The nutlets and the inner surface of the fruits are covered with long and extremely coarse bristly down. This herbal raw material can be identified as:

- A** \* *Fructus Rosae*
- B** *Fructus Sorbi*
- C** *Fructus Ribis nigri*
- D** *Fructus Viburni*
- E** *Fructus Hippophaes*

45. A patient suffers from avitaminosis C. The physician has prescribed a course of phytotherapy. What herbal raw material is rich in this vitamin?

- A** \* *Fructus Sorbi*
- B** *Cortex Quercus*
- C** *Rhizoma Tormentillae*
- D** *Cortex Viburni opuli*