

Results. To calculate the content of the PVP complex in the solution prepared for refractometry, respectively, use the formula:

$$W\% = \frac{n(n_0 + C_{novocaine}F_{novocaine} + C_{ioda}F_{ioda}V)}{F_{pvp}m_{nav}}$$

Conclusion. This method of determining the content of substances in the composition using the refractometric method, allows you to analyze multi-component drugs.

GRAPH THEORY IN MEDICAL AND PHARMACEUTICAL INVESTIGATIONS

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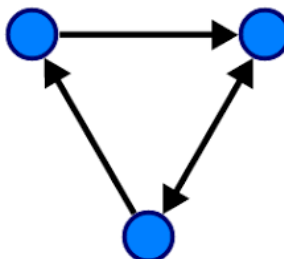
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Introduction. Graph theory is the area of discrete mathematics, which feature geometric approach to the objects study. Modeling of complex systems starts with qualitative description of the system structure in which various relationships between its components are identified. Mathematical tool to formalize the structure of relationships in such models are graphs. Visibility in the description of the structure depends on the dimension of the graph, but application of algorithms developed, with implementation in special or standard programs, processing data large numbers processing enables to obtain required information.

Aim. Graph theory is applied in the description of environmental and biological systems. Important tasks of the system analysis are the prediction problem, especially while some biosystem imbalance. In this case it is useful to present different scenarios and to detect possible underlying causes that lead to chaotic behavior of the system.

Materials and methods. As the most illustrative examples of graph models in biology are usually power supply. However, the graph in which recorded only the relationship of the "predator-prey" is insufficient for modeling complex, multi-component biological system. Methods for the task graphs:

1. Geometric:



2. Matrix adjacency:

	a	B	c	d
A	0	1	1	0
B	1	0	1	0
C	1	1	0	1
D	0	0	1	0

The adjacency matrix is a square matrix of dimension which is equal to the number of vertices. Moreover, a [i, j] is an integer which is equal to the number of edges connecting the i-th, j-th vertex. If there are no loops in the graph, then the diagonal elements are equal to 0. If the edges are not repeated, then all the elements are 0 or 1. If the graph is undirected, then the matrix is symmetric.

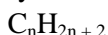
3. Incidence Matrix:

	a	B	c	d
A	1	1	0	0
B	0	1	1	0
C	1	0	1	0
D	0	0	1	1

4. Explicit specification of the graph as an algebraic system:

$\langle \{a, b, c, d\}, \{u, v, w, x\}; \{(u, a), (u, b), (v, b), (v, c), (w, c), (w, a), (x, c), (x, d)\} \rangle$

Results and discussion. A. Cayley considered the problem of the possible structures of saturated hydrocarbons, the molecules of which are given by the formula:



The molecule of each limiting hydrocarbon is a tree. If all hydrogen atoms are removed, then the remaining hydrocarbon atoms will also form a tree, each vertex of which has a degree not higher than 4. Consequently, the number of possible structures of saturated hydrocarbons, i.e. the number of given substance homologs is equal to the number of trees with degree peaks not more than four. Thus, counting the number of homologues of saturated hydrocarbons also leads to the problem of listing trees of a certain type. This problem and its generalizations were considered by D. Polya. Also, trees play a large role in the biological theory of branching processes. For simplicity, we discuss only one type of branching process – the reproduction of bacteria. Suppose that after a certain period of time, each bacterium either divides into two new ones or dies. Then for the one bacterium offspring, we get a binary tree.

Conclusions. Gene networks built for specific biological systems are difficult to analyze and require, like any domain model of special knowledge. The use of graph theory in the simulation of complex biological systems shows the universality of the discrete mathematics methods. At the same time, the tasks arising in the subject areas, including such as biology, medicine, and other ones adjacent to them, are followed by the emergence of new mathematical ideas, concepts, theories.

APPLICATION OF REFRACTOMETRY METHOD OF ANALYSIS IN CORRECTING LIGHT MYOPIA

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Introduction. Near-sightedness, or myopia is a vision condition in which people can see close objects clearly, but objects farther away appear blurred. People with myopia can have difficulty clearly seeing a movie or TV screen or the whiteboard in school. Myopia occurs if the eyeball is too long or the cornea is too curved. As a result, the light entering the eye isn't focused correctly, it is focused at a point in front of the retina and hence distant objects look blurred. Myopia may also occur due to environmental factors or other health problems. Some people may experience blurred distance vision only at night. With «night myopia», low light makes it difficult for the eyes to focus properly. Or the increased pupil size during dark conditions allows more peripheral, unfocused light rays to enter the eye. People who do an excessive amount of near-vision work may experience false or «pseudo» myopia. Their blurred distance vision is caused by overuse of the eyes' focusing mechanism. After long periods of near work, their eyes are unable to refocus to see clearly in the distance. Clear distance vision usually returns after resting the eyes. However, constant visual stress may lead to a permanent reduction in distance vision over time. Symptoms of myopia may also be a sign of variations in blood sugar levels in people with diabetes or may be an early indication of a developing cataract. If you have vision insurance, you probably have