TOPIC OF THE CONTEST

for the position of university professor

position 5, pharmaceutical biochemistry discipline I, II

1. Introduction to biochemistry. The biochemical composition of the human body. The role of water in the human body. Implications of biochemistry in the study of drugs. Transmembrane transport.

2. Nucleotides and the biochemical structure of nucleic acids

3. Proteins. Generalities. Amino acids. Protein functions.

4. The structural and functional diversity of proteins. Isolation and purification of proteins

5. Protein structure. Higher levels of organization. Relationship - sequence - spatial structure - biological function.

6. Vitamins - general considerations. Water-soluble and fat-soluble vitamins.

7. Vitamins – biochemical role, antagonists, deficiencies.

8. Vitamins – therapeutic implications, toxicity.

9. Enzymes - definition, nomenclature, classification, enzyme cofactors.

10. Factors influencing enzyme activity, mechanism of action. The biomedical importance of enzymes, isozymes. Enzyme therapy.

11. Metabolism. Intermediate metabolism. Electron transporter enzymes.

12. The general ways of transforming the fundamental constituents.

13. Cellular oxidation, citric cycle, mitochondrial respiratory chain.

14. Oxidative phosphorylation, microsomal systems (significance related to drug metabolism).

15. Carbohydrate metabolism. Digestion and absorption of carbohydrates. Glycolysis.

16. Gluconeogenesis.

17. The pentose phosphate pathway, the uronic pathway. Metabolism of other hexoses. Metabolism of galactose and fructose.

- 18. Glycogen metabolism.
- 19. Lipid metabolism. Digestion and absorption of lipids.
- 20. Metabolism of saturated and unsaturated fatty acids.
- 21. Essential fatty acids. Eicosanoids.
- 22. Metabolism of acylglycerols.
- 23. Structure and metabolism of complex lipids.

24. Biosynthesis and biotransformation of cholesterol. Bile acids.

25. Metabolism of proteins and amino acids. Digestion, absorption and distribution of proteins. Aminic N catabolism: transamination, deamination. Ureogenesis

26. Catabolism of the skeleton of C atoms of amino acids. Conversion of amino acids into specialized products. Hemoglobin.

27. Nucleic acids. Nucleic acid metabolism.

28. Hormonal system

Bibliography

1. P. Champe, R. Harvey, D. Ferrier, Biochimie ilustatra Lippincott editia a 4-a, Ed. Medicală Callisto, ISBN 97806068043062, 2019

2. V.Stoian, I.Stoian, Biochimie medicala Partea a II-a, Ed. Univ. Carol Davila, ISBN 9789737089984, 2018

3. PamelaC.Champe,Richard A.Harvey,Denise R.Ferrier Lippincot,Biochimie ilustrata –editia a-4a,Editura Medicala Callisto-editori-dr.Gh.P.Cuculici,dr.Anca W.Gheorghiu,ISBN-13;978-0-7817-6960-0,2008

4. Luciana Dobjanschi , Biochimie farmaceutică, Editura Universității din Oradea, ISBN 978-973-759-422-8, 253pg., 2007

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