

June 1st - 5th, 2020

**Class 35 “BIOCHEMISTRY OF NERVOUS, MUSCULAR,
AND CONNECTIVE TISSUES”**

Tasks:

- I. Prepare at least 9-pages outline of the class, containing answers to the questions listed in the training guidelines.**

THEORETICAL PART

1. Morphochemical composition of nervous tissue. Myelin membrane: composition and structure.
2. Specific features of carbohydrate, lipid and amino acid metabolism in nervous tissue. Energy metabolism in the brain.
3. Molecular mechanisms of synaptic transmission.
4. Mediators, biogenic amines and neuropeptides
5. Structure and composition of muscle tissue. Muscle proteins, their functions.
6. Biochemical mechanisms of muscle contraction and relaxation. Role of ions in regulation of muscle contraction.
7. Muscle energy metabolism. Sources of ATP for muscle contraction, role of creatine phosphate, creatine kinase.
8. Chemical composition and metabolism of extracellular matrix. Collagen, elastin; specific features of their structure and metabolism.
9. Proteoglycans, glycosaminoglycans and glycoproteins of the connective tissue; specific features of their synthesis and degradation, biological role.

LITERATURE FOR TRAINING:

1. Harper's Illustrated Biochemistry / Robert K. Murray [et. al.]. – 28th ed. – New York [etc]: McGraw-Hill, Medical, 2009. – P. 506-565.
2. Harper's Illustrated Biochemistry / Robert K. Murray [et. al.]. – 29th ed. – New York [etc]: McGraw-Hill, Medical, 2012. – P.589-628.
3. Biochemistry: manual for the medical faculty for international students (in English) / Н.Э. Петушок, А.А. Масловская, М.Н. Курбат. – Гродно: ГрГМУ, 2014. – P.272-291.
4. Harper's Illustrated Biochemistry / Robert K. Murray [et. al.]. – 31st ed. – New York [etc]: McGraw-Hill, Medical, 2018. – P. 592-625.
5. Harper's Illustrated Biochemistry / Robert K. Murray [et. al.]. – 30th ed. – New York [etc]: McGraw-Hill, Medical, 2015. – P. 627-666.
6. Lectures “Biochemistry of the nervous tissue”, “Biochemistry of the muscular tissue”, and “Biochemistry of the connective tissue”.

II. In the laboratory work “**QUANTITATIVE MEASUREMENT OF PROTEIN IN THE LIQUOR**” write down following results and make conclusion.

RESULT:

$$E_{\text{sample}} = 0.23$$

Find out the protein concentration in the sample from the calibration graph

$$C_{\text{sample}} = 0.5 \text{ g/l}$$

The notes and laboratory protocols will be revised by your teacher.

Please, report whether you have received this letter.