

Bioanalytical Methods (CBAN – WS)

1. Enzymatic analytical methods (allowance 4/4)

- a. Kinetics of enzymatic reactions
- b. Units of enzymatic activity
- c. Stabilisation of enzymes
- d. Enzymes as analytical agents

2. Immunochemical methods (allowance 4/4)

- a. Antigens, antibodies and their preparation
- b. Conjugates in immunochemistry
- c. Interactions of antibodies with antigens
- d. Precipitation and non-precipitation methods
- e. Application in analytics

3. Affinity chromatography (allowance 3/3)

- a. Bioaffinity chromatography
- b. Non-specific affinity chromatography
- c. Other extraction techniques based on affinity relationships

4. Electromigration (electrophoretic) methods (allowance 4/4)

- a. Principle of electromigration methods
- b. Free-flow, zonal, equilibrium and capillary electrophoresis
- c. Analytical applications of electrophoretic methods

5. Methods of nucleic acids extraction (allowance 2/4)

- a. Differences in DNA and RNA extraction methods
- b. Phenol-chloroform extraction
- c. Use of extraction kits

6. In vitro DNA amplification by polymerase chain reaction (PCR) (allowance 4/5)

- a. DNA - template for PCR
- b. In vitro DNA synthesis
- c. Detection of PCR products
- d. Identification of genetically modified organisms by means of PCR

7. Electrochemical methods (allowance 4/4)

- a. Methods of studies on low-molecular substances -- analysis of heavy metals and important secondary metabolites
- b. Methods of studies on low-molecular substances -- analysis of nucleic acids and proteins

8. Biochips and biosensors (allowance 2/0)

9. Nanotechnologies and nanomaterials (allowance 1/0)