**LIST OF QUESTIONS THE INTERMEDIATE EXAM 1**

**UNIT 1. HISTOLOGICAL TECHNIQUES. STRUCTURAL COMPONENTS OF TISSUES (TISSUE ELEMENTS)**

1. Definition of the subject “Histology”. History of its development.

2. Methods of histological investigations.

3. Techniques of the histological preparation making.

4. Types of dyes. Basophilia, oxiphilia, polychromatophilia, metachromasia and their causes.

5. Structural components of tissues (tissue elements).

6. Definition of a “Cell”. Cellular theory.

7. General principles of structural and chemical cell organization.

8. Form and size of cells and their nuclei. The relation of the cell shape with its structure and function.

9. Cell derivatives. Symplasts. Intercellular substance.

**UNIT 2. BASIC CYTOLOGY. ORGANELLES AND INCLUSIONS OF THE CYTOPLASM**

1. General principles of structural organization of cell cytoplasm.

2. Elementary biological membrane.

3. Cell surface. Plasmalemma (plasma membrane).Types of cellular contacts (junctions).

4. Membranous organelles. Their micro- and submicroscopical structure, molecular organization and functions.

5. Non-membranous organelles. Their micro- and ultramicroscopical structure, molecular organization and functions.

6. The special cell organelles, the structure of microvilli and cilia.

7. Intracellular inclusions, their classification and significance.

**UNIT 3. NUCLEUS. CELL CYCLE**

1. General principles of structural and chemical organization of cell nucleus and its functions.

2. Micro- and ultramicroscopic structure of the nucleolus and its functions.

3. Micro- and ultramicroscopic structure of the nuclear envelope and its role.

4. Micro- and ultramicroscopic structure of chromosomes.

5. Euchromatin and heterochromatin. Sex chromatin.

6. Mitosis, phases of mitosis.

7. Cell cycle.

8. Interaction of cell structures in metabolism (synthesis of protein and non-protein substances in a cell as an example).

**UNIT 4. INTRODUCTION TO GENERAL HISTOLOGY. EPITHELIAL TISSUES. GLANDS**

1. Notion about histological tissues, their definition and classification.

2. General morpho-functional characteristics of epithelial tissues. Basement membrane structure.

3. Morpho-functional classification of epithelial tissues. Surphace epithelium.

4 Location, structure and functions of simple epithelia.

5. Location, structure and functions of stratified epithelia.

6. Special organelles of epithelial cells and their structure.

7. Morphological and functional classification of glands, their characteristics.

8. Morphology of secretory cycle. Features of glandular cells ultrastructure.

**UNIT 5. BLOOD AND LYMPH. HEMOPOIESIS**

1. Blood system. Structure of blood as a tissue.

2. Ultrastructure and functional significance of blood cells (erythrocytes, leukocytes, platelets).

3. Hemogram.

4. Leukocyte differential count (leukocytic formula).

5. Prenatal and postnatal haematopoiesis.

6. Lymph. Cell composition.

**UNIT 6. CONNECTIVE TISSUES PROPER**

1. General characteristics of connective tissues. Classification.

2. Structure and functions of loose connective tissue cells.

3. Constituents of loose fibrous connective tissue intercellular matrix: ground substance and fibers (structural, chemical composition, physical

features).

4. Distribution and structure of dense regular fibrous connective tissue.

5. Structure of dense irregular connective tissue.

6. Specialized connective tissues, their structure and functions.

7. Co-operation of blood cells and connective tissues in processes of inflammation and immunogenesis.

**UNIT 7. CARTILAGE AND BONE TISSUES**

1. Classification, functions and structural components of cartilage tissues.

2. Structure and characteristic features of hyaline cartilage.

3. Structure and characteristic features of elastic cartilage. Spreading in the body.

4. Fibrocartilage, its location, structure and functions.

5. Histogenesis of cartilage (chondrogenesis). Regeneration of cartilage.

6. Classification of bone tissues.

7. Cellular elements of bone tissue, their morphology and functions.

8. The structure of intercellular matrix.

9. Structure of spongy bone tissue. Its location.

10. Structure of compact bone tissue.

11. Bone as an organ. Structure of the tubular bone.

12. Direct (from mesenchyme, intramembranous) and indirect (endochondrial) osteogenesis. Regeneration of the bone.