

Histology Self-Assessment Examination

First Year Medical Students

Time allowed: 2 hour

• Section A (20 Marks)

Choose The Most Correct Answer:

- 1) **The light passes through the light microscope as follows:**
 - a) Light source – condenser – slide – eyepiece.
 - b) Condenser – light source – slide – objective lens.
 - c) Light source – condenser – slide – objective lens.
 - d) Slide – objective lens - light source – condenser.
 - e) Condenser – objective lens – slide - eyepiece.

- 2) **Sections of the microtome usually have the following thickness:**
 - a) 1 - 2 micrometers.
 - b) 10 - 20 micrometers.
 - c) 4 – 8 micrometers.
 - d) 0.5 – 1 micrometers.
 - e) 60 - 100 nanometers.

- 3) **Paraffin technique is performed in the following order:**
 - a) Fixation – sectioning – dehydration – staining.
 - b) Fixation – dehydration - embedding - sectioning.
 - c) Fixation – dehydration – staining - sectioning.
 - d) Fixation – dehydration – staining - embedding.
 - e) Dehydration – fixation – sectioning - staining.

- 4) **The following is true about hematoxylin & eosin EXCEPT:**
 - a) Hematoxylin demonstrates acids.
 - b) Hematoxylin usually appears blue in color.
 - c) Eosin demonstrates collagen fibers.
 - d) Hematoxylin usually appears pink.
 - e) Eosin binds to the negatively charged components.

- 5) **Immuno-histochemistry is the best method to demonstrate:**
- a) Lipids
 - b) Metals
 - c) Proteins
 - d) Electrolytes
 - e) Nuclei
- 6) **The greatest number of mitochondria is found in:**
- a) Erythrocytes
 - b) Plasma cells
 - c) Smooth muscles
 - d) Cardiac myocytes
 - e) Neurons
- 7) **The following is true about ribosomes EXCEPT:**
- a) They are membranous cell organelles.
 - b) They are attached to rER.
 - c) They play a vital role in protein synthesis.
 - d) They are basophilic in staining.
 - e) They are composed of rRNA.
- 8) **The greatest number of lysosomes is found in:**
- a) Lymphocytes
 - b) Erythrocytes
 - c) Fibroblasts
 - d) Macrophages
 - e) Fat cells
- 9) **The nucleolus contains the following EXCEPT :**
- a) Nucleolar organizer
 - b) rRNA.
 - c) Pars fibrosa.
 - d) Pars ribosa.
 - e) Pars granulosa

- 10) **Chromosomes are aligned at the equatorial plate during:**
- a) Prophase
 - b) Metaphase
 - c) Anaphase
 - d) Telophase
 - e) Interphase
- 11) **The following is true about apoptosis EXCEPT:**
- a) It occurs in infants and adults.
 - b) It is required for normal growth and development.
 - c) It is not associated with inflammation.
 - d) It occurs due to hypoxia or cell injury.
 - e) It is usually associated with nuclear condensation.
- 12) **The pattern (47, XX+21) describes:**
- a) Patau syndrome.
 - b) Female with Down syndrome.
 - c) Male with Down syndrome.
 - d) Female with Turner syndrome.
 - e) Male with Philadelphia chromosome.
- 13) **If both parents are heterozygous Aa, the expected genotype of their offspring may be:**
- a) AA
 - b) Aa
 - c) aa
 - d) All of the above
 - e) None of the above
- 14) **The following is true about tight junctions:**
- a) Always seen apical to adherens junctions.
 - b) Always seen below adherens junctions.
 - c) Characterized by the presence of tonofilaments.
 - d) The most permeable type of junctions.
 - e) Sometimes form macula adherens.

15) Epithelium is characterized by the following EXCEPT:

- a) It tends to form junctions with each other.
- b) It is mitotically inactive.
- c) Little intercellular material.
- d) Lines surfaces and cavities.
- e) Cell show polarity.

16) The basal lamina contain the follwing molecules EXCEPT:

- a) Collagen.
- b) Proteoglycans.
- c) Laminin.
- d) Hydroxyapatite.
- e) fibronectin.

17) The follwing are connective tissue cells EXCEPT:

- a) Fibroblasts
- b) Langerhan's cells
- c) Myofibroblasts
- d) Adipose cells
- e) Mast cells

18) The largest connective tissue cells are:

- a) Fibroblasts
- b) Myofibroblasts
- c) Adipocytes
- d) Eosinophils
- e) Macrophages

19) The perichondrium is present in the following types of cartilage EXCEPT:

- a) Thyroid cartilage
- b) Tracheal cartilage
- c) Costal cartilage
- d) Articular cartilage
- e) Cartilage of the ear pinna

20) **Schwann cells are characterized by the following EXCEPT:**

- a) They form the segmented myelin sheath.
- b) They are present in the central nervous system.
- c) They are interrupted by nodes of Ranvier.
- d) The myelin sheath is in contact with the neurilemma.
- e) They play a role in regeneration of neurons.

21) **Cells forming the blood-brain barrier are:**

- a) Microglia
- b) Astrocytes
- c) Schwann cells
- d) Ependymal cells
- e) Oligodendrocytes

22) **The normal range of the erythrocyte's diameter is:**

- a) 7-8 μm
- b) 8-9 μm
- c) 6-8 μm
- d) 7-10 μm
- e) 9-10 μm

23) **Reticulocytes are considered as:**

- a) Immature RBCs
- b) Immature platelets
- c) Mature fibroblasts
- d) Immature fibroblasts
- e) Reticular connective tissue cells

24) **Type A blood group individuals:**

- a) have B antigens on RBCs and anti-B antibodies in the plasma.
- b) have A antigens on RBCs and anti-B antibodies in the plasma.
- c) have A antigens on RBCs and anti-A antibodies in the plasma.
- d) have no antigens on RBCs and anti-A antibodies in the plasma.
- e) have no antigens on RBCs and anti-B antibodies in the plasma.

- 25) **Which one of these neutrophils is the oldest?**
- a) A neutrophil with a non-segmented nucleus
 - b) A neutrophil with 2 nuclear segments
 - c) A neutrophil with 3 nuclear segments
 - d) A neutrophil with 4 nuclear segments
 - e) A neutrophil with 5 nuclear segments
- 26) **Types of T-lymphocytes include the following EXCEPT:**
- a) Cytotoxic cells
 - b) Killer cells
 - c) Antigen presenting cells
 - d) Helper cells
 - e) Suppressor cells
- 27) **Blood platelets contain the following EXCEPT:**
- a) Hyalomere
 - b) Granulomere
 - c) Actin & myosin
 - d) Mitochondria
 - e) Central nuclei
- 28) **The A band of muscular tissue contains:**
- a) Actin and myosin
 - b) Actin only
 - c) Myosin only
 - d) Ground substance
 - e) None of the above
- 29) **The following are true about intercalated discs EXCEPT:**
- a) They are found only in cardiac muscles
 - b) They have no role in cardiac functions
 - c) They contain desmosomes
 - d) They contain gap junctions
 - e) They can be observed by LM

- 30) **Skeletal muscle fibers are usually parallel EXCEPT in:**
- a) Calf muscles
 - b) Facial muscles
 - c) Hand muscles
 - d) Shoulder muscles
 - e) Abdominal muscles
- 31) **The normal spleen performs the following functions except:**
- a) Hematopoiesis
 - b) Destruction of old RBCs
 - c) Elimination of foreign bodies and micro-organisms
 - d) Production of lymphocytes
 - e) Activation of lymphocytes
- 32) **The following vessel contains the largest amount of elastic fibers in its media:**
- a) Inferior vena cava
 - b) Aorta
 - c) Basilar artery
 - d) Coronary artery
 - e) Medium sized artery
- 33) **The internal elastic lamina is most clearly seen in:**
- a) Aorta
 - b) Arterioles
 - c) Muscular arteries
 - d) Medium sized veins
 - e) Inferior vena cava
- 34) **Vascular endothelial cells perform the following functions except:**
- a) Prevention of intra-vascular clotting.
 - b) Attracting blood neutrophils.
 - c) Building specific barriers in certain organs.
 - d) Production of adhesion molecules.
 - e) Destruction of old RBCs.

- 35) **T-Lymphocytes develop their TCR in:**
- a) bone marrow
 - b) Thymus gland
 - c) Spleen
 - d) Lymph nodes
 - e) All lymphoid tissues
- 36) **Lymphatic nodules are NOT found in:**
- a) Cortex of lymph nodes.
 - b) Tonsils.
 - c) Spleen.
 - d) Respiratory and gastrointestinal mucosa.
 - e) Thymus.
- 37) **Multiple peripheral nuclei are found in:**
- a) Smooth muscle
 - b) Skeletal muscle
 - c) Cardiac muscle
 - d) Fat cells
 - e) Mast cells
- 38) **The following skeletal muscle protein can bind to calcium:**
- a) Myosin
 - b) Myoglobin
 - c) Meromyosin
 - d) Troponin
 - e) Actin
- 39) **The following about tunica adventitia are true EXCEPT:**
- a) Contain the vasa vasorum
 - b) Contain collagen fibers
 - c) Contain autonomic nerves fibers
 - d) More prominent in veins
 - e) Rich in elastic fibers

40) **Red pulp of the spleen consists of:**

- a) T-lymphocytes.
 - b) B-lymphocytes.
 - c) Splenic cords, venous sinuses, and reticular fibers.
 - d) Lymphatic nodules.
 - e) Elastic connective tissue.
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• **Section B: (8 Marks)**

Give Reason For The Following Facts:

- 1) Lipid droplets appear empty after paraffin technique.
 - 2) The media of aorta contain mainly elastic fibers.
 - 3) Endocrine glands have fenestrated capillaries.
 - 4) Presence of many dead lymphocytes in the medulla of the thymus.
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• **Section C: (8 Marks)**

Demonstrate the following, BY USING TABLES:

- 1) Comparison between meiosis and mitosis
- 2) Comparison of different types of muscles

- **Section D: (4 Marks)**

Write down the missing labels

Diagram A:

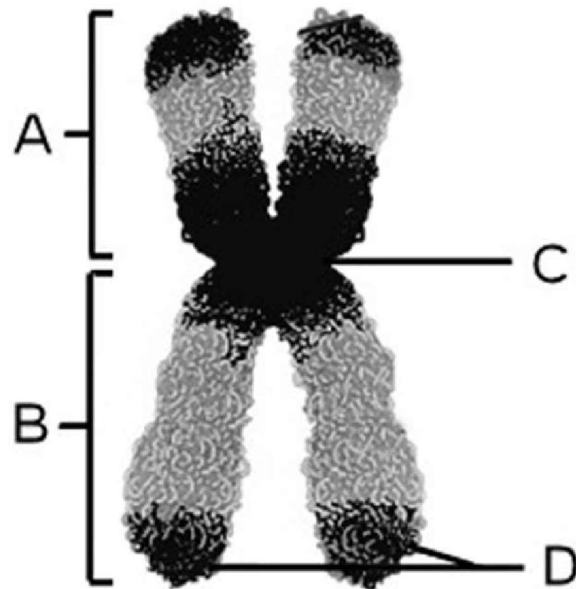
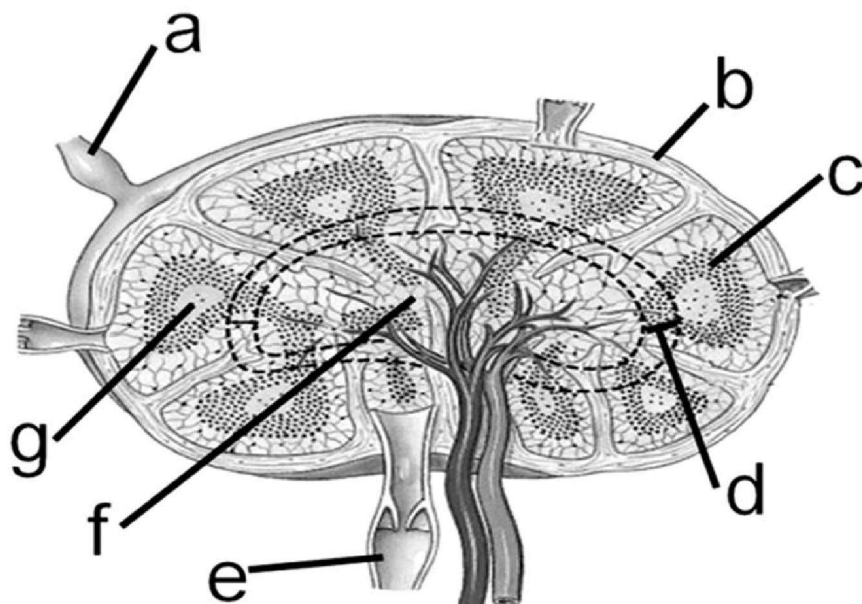


Diagram B:



MCQ Answer Sheet

1	a	b	c	d	e	21	a	b	c	d	e
2	a	b	c	d	e	22	a	b	c	d	e
3	a	b	c	d	e	23	a	b	c	d	e
4	a	b	c	d	e	24	a	b	c	d	e
5	a	b	c	d	e	25	a	b	c	d	e
6	a	b	c	d	e	26	a	b	c	d	e
7	a	b	c	d	e	27	a	b	c	d	e
8	a	b	c	d	e	28	a	b	c	d	e
9	a	b	c	d	e	29	a	b	c	d	e
10	a	b	c	d	e	30	a	b	c	d	e
11	a	b	c	d	e	31	a	b	c	d	e
12	a	b	c	d	e	32	a	b	c	d	e
13	a	b	c	d	e	33	a	b	c	d	e
14	a	b	c	d	e	34	a	b	c	d	e
15	a	b	c	d	e	35	a	b	c	d	e
16	a	b	c	d	e	36	a	b	c	d	e
17	a	b	c	d	e	37	a	b	c	d	e
18	a	b	c	d	e	38	a	b	c	d	e
19	a	b	c	d	e	39	a	b	c	d	e
20	a	b	c	d	e	40	a	b	c	d	e

Good Luck

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