Al-Azhar University
Assiut Branch
Faculty of Medicine
Histology Department

جامعة الأزهر
فرع أسيوط
كلية الطب
قسم الهستولوجى

# Histology Self-Assessment Examination – Answer key
## First Year Medical Students

## Section A

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |

## Section B: Give Reason

***1) Lipid droplets appear empty after paraffin technique.***

A: Xylene is used to dissolve paraffin, but in the same time it dissolves lipids in tissue sections. Accordingly, they appear as empty areas after processing.

***2) The media of aorta contain mainly elastic fibers.***

A: Structure to function relationship. Aorta is exposed to high fluctuations of blood pressure. Elastic fibers help controlling its diameter to expand and recoil during systole and diastole.

***3) Endocrine glands have fenestrated capillaries.***

A: Endothelial fenestrations help passage of large molecules such as hormones.

***4) Presence of many dead lymphocytes in the medulla of the thymus.***

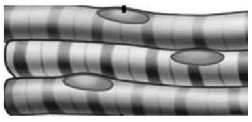
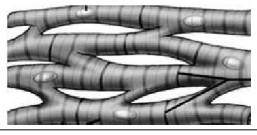
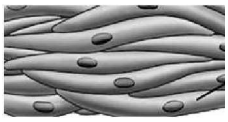
A: Due to negative selection of abnormal T-lymphocytes by reticulo-epithelial cells. This leads to apoptosis of lymphocytes which failed to express normal TCR.

# Section C:

## *1- Comparison between Meiosis and Mitosis*

| | **Meiosis** | **Mitosis** |
|---|---|---|
| ***Cell type*** | Gametes | Somatic cells |
| ***Divisions*** | 2 | 1 |
| ***S phase*** | No S phase in-between the 2 Divisions | preceded by an S phase |
| ***Chromosome number*** | Half of parent | Same as parent |
| ***End product*** | 4 daughter cells, different from the original | 2 identical cells similar to original |
| ***Crossing over*** | Occur in prophase I | absent |
| ***Chromosomal migration*** | Whole chromosomes move in Anaphase I | Half Chromosomes (chromatids) move |
| ***Aim*** | Sexual reproduction | Growth and repair |
| ***Time in life*** | At sexual maturity | Throughout life |

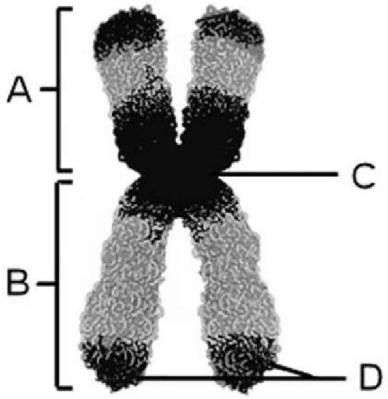
## 2- *Comparison Of Muscles Types*

| | Skeletal | Cardiac | Smooth |
|---|---|---|---|
| **Site** | Attached to skeleton | Heart | Viscera & blood vessels |
| **Control** | Voluntary | Involuntary | Involuntary |
| **Fibers** | Parallel, non branching (except in the face & tongue) | Branching and anastomosing | Fusiform |
| **Nuclei** | Multiple, peripheral | Single, central | Single, central |
| **Striations** | +++ | + | - |
| **Sarcomere** | +++ | + | - |
| **Intercalated discs** | - | + | - |
| **T-tubules**<br>**Mitochondria** | triad<br>++ | diad<br>+++ | non<br>+ |
| **Regeneration** | by satellite cells | non | Mitosis |
| **Shape** |  |  |  |

# Section D:

## Diagram A:

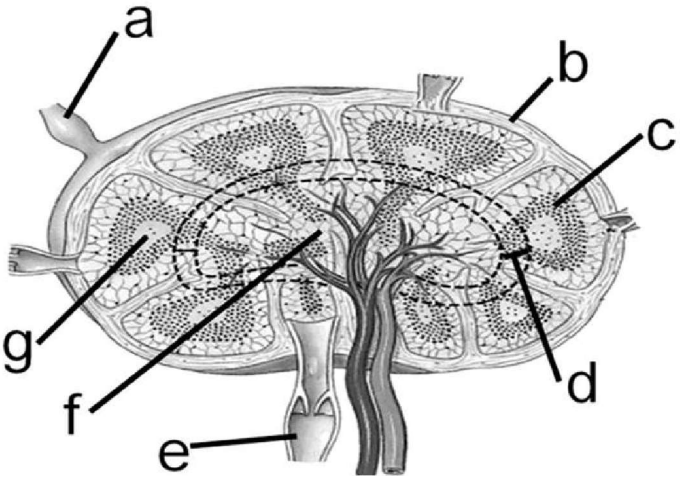
***Diagram of a chromosome***




***A:*** P-arm
***B:*** Q-arm
***C:*** Centromere
***D:*** Telomeres

## Diagram B:

***Diagram of a Lymph node***




***A:*** Afferent lymphatic
***B:*** Capsule
***C:*** Lymphatic nodule
***D:*** Inner cortex.
***E:*** Efferent lymphatic
***F:*** Medulla