

ANSWERS TO THE HISTOLOGY SLIDESHOW MARATHON SENT ON 9TH JUNE 2017

Number 1

- (a) Bone Tissue - presence of Haversian canals, presence of osteocytes in Lacunae,
- (b) Osteoprogenitor cells - stem cells and give rise to osteoblasts
 - Osteoblasts- Lay down matrix then gets trapped in the matrix, becomes calcified to Form osteocytes
 - Osteocytes- maintain matrix
 - osteoclasts - bone resorption
 - endosteal and periosteal cells - bone lining cells.
- (c) inner circumferential lamellae, outer circumferential lamellae and interstitial lamellae.
- (d) Endochondral and intramembranous ossification.
- (e) periosteum covering from the outer side and endostium from the inner side

Number 2

- (a) Cardiac muscle - striated fibres, highly branched fibres, presence of intercalated discs.
- (b) Structural properties- abundant mitochondria (research)
Functional properties- (research)
- (c)- abundant mitochondria
 - Its actin and myosin are arranged in a sarcomeric pattern
- (d) myoid cells, myoepithelial cells and myofibroblasts

Number 3

- (a) sweat glands - tubular, epithelium is simple Cuboidal
- (b) apocrine and holocrine mode of secretions

Number 4

- (a) Epiphyseal growth plate - Cells of different sizes giving rise to zonations, cells in Lacunae
- (b) Achondroplasia - calcification of epiphyseal growth plate preventing growth in length.
- (c) zone of hypertrophy

Number 5

- (a) pseudostratified columnar ciliated with Goblet cells - Nuclei of cells located at different levels giving rise false sense of stratification, Brush border apical specialization,
- (b) Respiratory epithelium. Found in trachea, primary bronchus, bronchioles

Number 6

- (a) left diagram-fibrocartilage - consists of dense irregular fibres

Right diagram - Elastic cartilage - consists of abundant Elastic, highly coiled fibres.

- (b) nucleus pulposus - notochord

Annulus fibrosus- sclerotome

Number 7

- (a) Elastic cartilage - characteristic brown staining in Weigerts stain, highly cellular and has large Lacunae
- (b) pinna of ear, epiglottis, ala of the nose

Number 8

- (a) Lactating mammary gland.

(b) LACTATING MAMMARY GLAND =well developed alveolar, less interstitial connective Tissue

NON-LACTATING MAMMARY GLAND =less alveolar, abundant interstitial connective Tissue

Number 9

(a) Dorsal root ganglion - large cells with euchromatic nuclei and prominent nucleolus, cells are aggregated together as a ganglion and with intervening nerve fibres

(b) Herpes zoster

Number 10

(a) cerebellum- three layers, middle layer being one cell thick

(b) Molecular layer- Dendrites of Purkinje. Basket and stellate cells

Purkinje layer - one cell thick layer containing cell bodies of Purkinje neurons

Granular- granule cells and golgi type 2 cells

Number 11

(a) M- pineal gland

N- trochlear

H- Dentate nucleus

(b) dentatothalamic, dentatorubral

Number 12

(Reticular fibres - liver, spleen, bone marrow, adipose Tissue)

Number 13

Muscular artery- its tunica media is thick and Muscular (whats the difference between Elastic and Muscular blood vessels in histology? Give examples including hybrid ones)

Number 14

K- cuneus gyrus

L- anterior commissure

Number 15

(a) Pyramidal neuron - pyramidal shaped cell body, with long apical Dendrite.. (recall organization of astrocytes and Purkinje neurons)

-pyramidal neurons are mainly located in major output layer of the cerebrum ;layer 5= inner pyramidal layer. However small pyramidal neurons are found in layer 3 outer pyramidal layer.

(b) Molecular layer

Outer Granular

Outer pyramidal

Inner Granular

Inner pyramidal

Polymorphic layer.

With lots of love and blessings

Dr. Vincent Kipkorir.