

# Histology MCQs/Cell and Technique (2023/24)

**1** How is called degradation of harvested sample of tissue caused by main enzymes of the tissue?

- ☐ Autolysis
- ☐ Apoptosis
- ☐ Autophagy
- ☐ Autonomy

**2** Why are some hematoxylin called "iron"?

- ☐ Used embedding medium contains iron
- ☐ Used fixative fluid contains iron
- ☐ Used hematoxylin is steel-blue
- ☐ Used mordant contains iron

**3** Which structure is stained using PAS reaction?

- ☐ DNA
- ☐ RNA
- ☐ Glycogen only
- ☐ All polysaccharides

**4** All but one structure are eosinophilic. Which is not?

- ☐ Mitochondria
- ☐ Ribosomes
- ☐ Cytoplasm
- ☐ Collagen

**5** Which basic (overview) staining method is the most common?

- ☐ AZAN (aka Heidenhein's trichromatic method)
- ☐ Hematoxylin-Eosin
- ☐ Mallory trichrome
- ☐ Masson trichrome

**6** Which color has collagen if the yellow Masson trichrome is used?

- ☐ Yellow
- ☐ Black
- ☐ Pink
- ☐ Red

**7** Which color have nuclei if the AZAN is used?

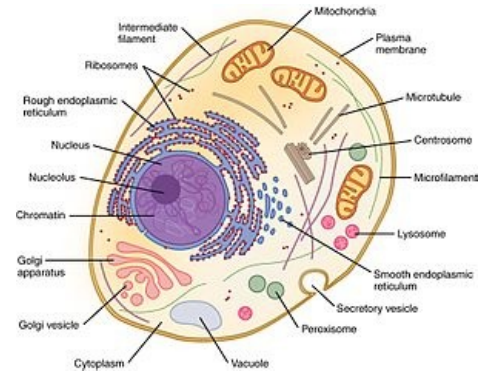
- ☐ Magenta
- ☐ Black
- ☐ Blue
- ☐ Red

**8** Which method of physical fixation is the most common?

- ☐ Irradiation by UV light
- ☐ Microwaving
- ☐ Freezing
- ☐ Heating

**9** How thick are slices of the specimen for the light microscopy?

- ☐ 4 - 10 mm
- ☐ 1 - 5 mm



- ☐ 4 - 10  $\mu\text{m}$
- ☐ 1 - 5  $\mu\text{m}$

**10** Which embedding medium is the most common for processing for the light microscopy?

- ☐ Water insoluble resin
- ☐ Water soluble resin
- ☐ Parafin-wax
- ☐ Gelatine

**11** Which tool is necessary if the label in used immunohistochemistry is a fluorescent dye?

- ☐ Atomic force microscope
- ☐ Electron microscope
- ☐ Source of UV light
- ☐ Cryotome

**12** What is necessary if the Sudan IV dye is applied?

- ☐ Preserve the monosaccharides inside the specimen
- ☐ Preserve the fat inside the specimen
- ☐ Keep the specimen frozen
- ☐ Keep the specimen warm

**13** Where take places enzymes of the respiratory chain?

- ☐ Intermembranous mitochondrial space
- ☐ Inner mitochondrial membrane
- ☐ Outer mitochondrial membrane
- ☐ Inner mitochondrial matrix

**14** Which type of cytoskeleton is used by the dynein?

- ☐ Dynein is not associated with the cytoskeleton
- ☐ Intermediate filaments
- ☐ Microfilaments
- ☐ Microtubules

**15** Which of following molecules can pass the membrane easily without the transporter?

- ☐ Fatty acid
- ☐ Glucose
- ☐ Oxygen
- ☐ Water

**16** How is called programmed cell death?

- ☐ Autolysis
- ☐ Autophagy
- ☐ Apoptosis
- ☐ Autonomy

**17** How is called phase of the cell cycle in which are non-proliferating cells like neurons?

- ☐ G0
- ☐ G1
- ☐ G2
- ☐ G3

**18** Which cells contain huge amount of a lipofuscin?

- ☐ Intensely dividing cells
- ☐ Immature cells
- ☐ Young cells
- ☐ Old cells

**19** How is called main/immediate template for production of proteins?

- ☐ snRNA

- ☐ mRNA
- ☐ tRNA
- ☐ rRNA

**20** What is main function of the nucleolus?

- ☐ Production of proteasomes
- ☐ Production of peroxisomes
- ☐ Production of ribosomes
- ☐ Production of lysosomes

**21** One of following functions is not main function of the Golgi apparatus. Which one?

- ☐ Covalent modification of proteins
- ☐ Degradation of proteins
- ☐ Targeting of proteins
- ☐ Glycosylation

**22** What is not main function of the smooth endoplasmic reticulum?

- ☐ Degradation of xenobiotics
- ☐ Synthesis of proteins
- ☐ Production of lipids
- ☐ Storage of calcium

**23** High amount of the euchromatin in a nucleus is a sign of:

- ☐ Epigenetical silencing of nearly all genes
- ☐ High level of transcription of genes
- ☐ Preparation for mitotic division
- ☐ Preparation for meiotic division

**24** Nuclear envelope is associated with one class of intermediate filaments. Which one?

- ☐ Cytokeratines
- ☐ Vimentin
- ☐ Lamins
- ☐ Desmin

**25** How are called main structural proteins of chromosomes which are tightly associated with the DNA?

- ☐ Histones
- ☐ Tubulins
- ☐ Lamins
- ☐ Actins

**26** What is a glycocalyx?

- ☐ Layer of nucleic acids associated with outer cell membrane
- ☐ There is no structure called glycocalyx in the human body
- ☐ Layer of saccharides associated with outer cell membrane
- ☐ Layer of lipids associated with outer cell membrane

**27** What is main function of aquaporins?

- ☐ They are involved in regulation of exocytosis
- ☐ They are part of pinocytic vesicles
- ☐ They are involved in phagocytosis
- ☐ They are channels for water

**28** Which cell adhesion is the most important for mechanical cohesivity of cells?

- ☐ Zonula occludens (occludent junction)
- ☐ Desmosome (macula adhaerens)
- ☐ Gap junction (nexus)
- ☐ Tight junction

**29** Which of following molecules is usually immediate source of energy for biochemical processes?

- ☐ Triacylglycerols
- ☐ Fatty acids
- ☐ Glucose
- ☐ ATP

**30** How is called first step of mitosis?

- ☐ Metaphase
- ☐ Telophase
- ☐ Prophase
- ☐ Anaphase

**31** Which type of cytoskeleton is usually associated with gap junctions?

- ☐ Gap junction is not associated with cytoskeleton
- ☐ Cytokeratins
- ☐ Vimentin
- ☐ Actin

**32** How is called central structure for growth of microtubules?

- ☐ Centrosome
- ☐ Peroxisome
- ☐ Proteasome
- ☐ Nucleus

**33** Which structure gives rise to the lipofuscin?

- ☐ Smooth endoplasmic reticulum
- ☐ Golgi apparatus
- ☐ Melanosomes
- ☐ Lysosomes

**34** Which structure is main molecule of the biological membrane?

- ☐ Neutral polysaccharides
- ☐ Charged polysaccharides
- ☐ Lipophilic proteins
- ☐ Phospholipids

**35** Which is a function of caspases?

- ☐ Degradation of macromolecules of dying cell
- ☐ Degradation of ingested bacteria
- ☐ Degradation of worn-out proteins
- ☐ Degradation of damaged DNA

**36** Which of following structures is a cell inclusion?

- ☐ Granule of glycogen
- ☐ Proteasome
- ☐ Ribosome
- ☐ Centriol

**37** Which organelles are abundant in the basal labyrinth (aka basal annealing)?

- ☐ Golgi apparatus
- ☐ Microfilaments
- ☐ Mitochondria
- ☐ Ribosomes

**38** Which type of cytoskeleton supports microvilli?

- ☐ Vimentin filaments
- ☐ Microfilament
- ☐ Microtubules
- ☐ Cytokeratins

**39** Which motor protein is responsible for movement of kinocilia (aka cilia)?

- ☐ Kinocilia are immotile
- ☐ Kinesin
- ☐ Dynein
- ☐ Myosin

**40** Which motor protein is responsible for movement of stereocilia?

- ☐ Stereocilia are immotile
- ☐ Kinesin
- ☐ Myosin
- ☐ Dynein

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## Links

- List of all tests: Histology MCQs
- Portal:Histology