

# Histology MCQs/Cardiovascular System

1 All but one of following cell adhesions are common in the intercalated disk. Which is not common?

- Zonula occludens
- Fascia adherens
- Gap junction
- Desmosome

2 All but one of following vessels **does not contain** valves. Which one does contain valves?

- Great saphenous vein
- Inferior vena cava
- Renal artery
- Azygos vein

3 Are there valves in **lymphatic vessels**?

- Yes, they are
- Yes, they are, but in the thoracic duct only
- Yes, they can be here, but as an anatomical variant only
- No, they are not

4 **Arteries of elastic type** are mainly: (i.e., "Which arteries are arteries of elastic type?")

- The biggest arterioles, usually without anatomical name
- In our species, all arteries are of elastic type
- Middle-sized arteries, e.g. radial artery
- The biggest arteries, mainly aorta

5 '*Arteries of muscular type* are mainly:

- The biggest arterioles, usually without anatomical name
- In our species, all arteries are of muscular type
- Middle-sized arteries, e.g. radial artery
- The biggest arteries, mainly aorta

6 Of which cells is composed **conducting system of the heart**?

- Cells which are similar to cardiac muscle cells, but they originated in the neural crest
- Cells which are similar to bipolar neurons, but they are of mesenchymal origin
- Modified cardiac muscle cells
- Modified smooth muscle cells

7 Do cardiac muscle cells produce some hormones?

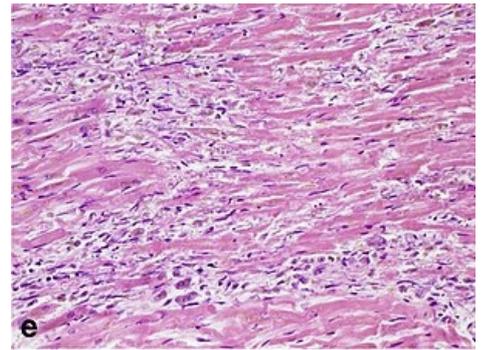
- Yes, for example the atrial natriuretic factor (ANF)
- Yes, for example the erythropoietin (EPO)
- Yes, for example the trombopoietin (TPO)
- No, they don't produce hormones

8 Does **tunica adventitia** of big veins contain elastic fibers?

- Yes, it does
- No, it does not
- Yes, it does, but in cavae veins only
- Yes, it does, but as an anatomical variant only

9 How big are cells of **conducting system of the heart**?

- They are of roughly of the same size in all parts of the conducting system
- It depends on the site, the biggest cells are in the Purkyně's fibers



This is myocardial infarction. Don't worry, myocardial infarction is topic for 3rd year.

- It depends on the site, the biggest cells are in the sinoatrial node
- It depends on the site, the biggest cells are in the bundle of His

**10** How does look the basement membrane of **lymphatic capillaries**?

- It is continuous and well developed
- It is continuous, but very thin
- It is discontinuous
- It does not exist

**11** How many elastic membranes are in the tunica media of aorta?

- Usually around 10
- Usually around 50
- Usually around 100
- Usually around 500

**12** How to describe the shape of the cardiac muscle cell?

- Cardiac muscle cell is of cylindrical shape, but can have branches
- Cardiac muscle cell is a fiber with several nuclei
- Cardiac muscle cell is irregular star-shaped
- Cardiac muscle cell is spindle-shaped

**13** It is possible that damaged myocardium of adult fully regenerates (undergoes *restitutio ad integrum*)?

- Yes, it is possible
- Yes, it is possible, but only myocardium of ventricles has this ability
- Yes, it is possible, but only some people have this ability
- No, it is not possible

**14** Main cells of tunica media of majority of vessels are:

- Longitudinally arranged striated muscle cells
- Longitudinally arranged smooth muscle cells
- Circularly arranged striated muscle cells
- Circularly arranged smooth muscle cells

**15** Which is main tissue of the cardiac skeleton?

- There is no structure called "cardiac skeleton"
- Dense connective tissue
- Hyaline cartilage
- Fibrocartilage

**16** The innermost layer of the heart is called:

- Endocardium
- Pericardium
- Epicardium
- Myocardium

**17** What is an **angiogenesis**?

- Budding of new vessels from existing vessels under pathological condition only
- Budding of new vessels from existing vessels during development or adulthood
- Abnormal differentiation of new vessels during the embryonic development
- Differentiation of new vessels during embryonic development

**18** What does it mean that endothelial cells have ability to perform **transcytosis**? (i.e., "What is a transcytosis?")

- Organelles of endothelial cells are shared, especially mitochondria are shared intensively and travel from a cell to a cell
- They allow to white blood cells cross to leave the blood not only in between endothelial cells, but also through the cells
- They transport compounds through the cytoplasm from one side of the cell to the second side inside endocytic vesicles
- Molecular pattern on the blood surface is dynamic and depends strongly on processes in deeper layers of

- the vessel

**19** What is main function of **carotid sinus**?

- Receptor of the oxygen partial pressure of oxygen
- Receptor of the carbon dioxide partial pressure
- Receptor of the blood pressure
- Receptor of the blood pH

**20** What are **Weibel-Palade bodies**?

- They are granules in cells in the subendothelial connective tissue containing von Willebrand factor (protein of blood clotting cascade) and P-selectin
- They are granules in cells in the subendothelial connective tissue containing enzymes and substrates for production of nitric oxide (NO)
- They are granules in endothelial cells containing von Willebrand factor (protein of blood clotting cascade) and P-selectin
- They are granules in endothelial cells containing enzymes and substrates for production of nitric oxide (NO)

**21** What is a **vaskulogenesis**?

- Budding of new vessels from existing vessels under pathological condition only
- Budding of new vessels from existing vessels during development or adulthood
- Abnormal differentiation of new vessels during the embryonic development
- Differentiation of new vessels during embryonic development

**22** Where do we find pericytes?

- In the wall of capillaries
- In the wall of all vessels
- In the wall of arteries
- In the wall of veins

**23** Where takes place the **membrana elastica interna**?

- On border between tunica media and tunica adventitia of arteries
- On border between tunica media and tunica adventitia of veins
- On border between tunica intima and tunica media of arteries
- On border between tunica intima and tunica media of veins

**24** Which is common diameter of the capillary?

- 5 to 20  $\mu\text{m}$
- 20 to 50  $\mu\text{m}$
- 50 to 100  $\mu\text{m}$
- 100 to 200  $\mu\text{m}$

**25** Which of following statements describes **endothelial cell** the most accurate?

- Flat, polygonal, elongated in the direction of blood flow
- Irregular, prone to overlap other endothelial cells
- Cuboidal, regular, with radial symmetry
- Flat, with long processes

**26** Which organ contains capillaries with **continuous endothelium**?

- Small intestine
- Skeletal muscle
- Thyroid gland
- Kidney

**27** Which organ contains capillaries with **fenestrated endothelium**?

- Connective tissue
- Choroid plexus
- Brain
- Lung

**28** Which organ contains **sinusoids** (sinusoidal capillaries)?

- Large intestine
- Uterine muscle
- Bone marrow
- Pancreas

**29** Which structure is on the border between tunica media and tunica adventitia in **brachial artery**?

- Membrana fibromuscularis interna
- Membrana fibromuscularis externa
- Membrana elastica externa
- Membrana elastica interna

**30** Which type of capillaries has **discontinuous basement membrane**?

- Sinusoids (sinusoidal capillaries) and fenestrated capillaries
- All capillaries have discontinuous basement membrane
- Capillaries with fenestrated endothelium
- Sinusoids (sinusoidal capillaries)

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- List of all tests: Histology MCQs
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