

Cardiovascular histology

1. Which of the following statements is false with regard to the circulatory system?

- a) Lymphatic capillaries can penetrate the media of veins.
- b) Vasa vasorum are more frequent in veins than in arteries.
- c) The tunica adventitia tends to be much larger in veins than in arteries.
- d) The concentration of glycosaminoglycans is higher in arterial than in venous tissue.
- e) Sinusoids of the liver and the glomeruli of the kidney typically possess continuous endothelium.

Answer: E

2. **Tunical intima**, supported by a thin layer of connective tissue:

- a) contains some small capillaries.
- b) is homologous to the pericardium of the heart.
- c) includes a layer of simple squamous epithelium.
- d) is a fenestrated sheet of elastin.
- e) is separated from tunica media of arteries by the external elastic lamina.

Answer: C

3. Which of the following statements is **true** with regard to the **circulatory system**?

- a. Albumin is present in higher concentrations in plasma than in serum.
- b. Smooth muscle is most substantial in the media of muscular arteries.
- c. Heart valves normally consist of an endothelial surface covering loose areolar connective tissue.
- d. Pericytes, which are terminally differentiated and multinucleated, are specialized cardiac muscle cells.
- e. The SA node, the AV node, and the Purkinje fibers of the myocardium all consist of specialized nerve cells.

Answer: B

4. Which of the following statements is **true** with regard to the **circulatory system**?

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- e. The SA node, the AV node, and the Purkinje fibers of the myocardium all consist of specialized nerve cells.

Answer: B

5. Which of the following statement is correct with the regard to the circulatory system?
- a) Vasa vasorum are more frequent in arteries than in veins
 - b) Tunica media is replaced by pericytes in capillaries and postcapillary venules
 - c) The concentration of glycosaminoglycans is higher in venous than in arterial blood vessels
 - d) Sinusoids of the liver and the glomeruli of the kidney typically possess identifiable fibrocartilaginous adventitia
 - e) The tunica adventitia tends to be the thickest and the most prominent in arteries than in veins

Answer: B

6. Select a statement which is not correct concerning the lymphatic capillaries?
- a) They have more irregular outline than the blood capillaries
 - b) They are thin-walled vessels that begin as blind-ended channels
 - c) They possess continuous basal lamina with contractile pericytes
 - d) They are composed of single layer of attenuated endothelial cells that lack fenestrae
 - e) They are held open by microfibrils which also anchor them to the surrounding connective tissue

Answer: C

7. Which of the following statements is not correct with regard to the circulatory system?
- a) Carotid bodies are chemoreceptors sensitive to hypoxia
 - b) A prominent internal elastic lamina is a characteristic of muscular arteries
 - c) The brachiocephalic and subclavian arteries are typical elastic arteries
 - d) Arterioles are the sites of exit of leukocytes from blood into tissues by diapedesis
 - e) Like arteries and veins, large lymphatic ducts contain vasa vasorum and a rich neural network

Answer: D

8. Which of the following statements is correct regarding the circulatory system
- a) In sinusoidal capillaries pinocytic vesicles are lacking
 - b) Endocardium is continuous with parietal layer of pericardium
 - c) Elastic fibers are scarce in myocardium of the atria

- d) Purkinje fibers(cells) possess Few central myofibrils without mitochondria
- e) Fenestrated capillaries with abundant fenestrae are found in the epidermis of the skin

Answer: A

9. Which statement is incorrect about the pericytes? Pericytes
- a) Are satellite cells that intimately surround capillaries and post capillary venules
 - b) Are enclosed in their own basal laminae continuous with that of endothelial cells
 - c) Are multinucleated cardiac muscle cells that are terminally differentiated
 - d) Participate in repair processes
 - e) Are mesenchymal cells that partly surround the endothelial cells

Answer: C

- 10.Regarding the circulatory system, select the incorrect statement
- a) Veins have less elastic tissue than arteries
 - b) Carotid bodies are richly supplied by fenestrated capillaries
 - c) Endothelium of vessels entering or leaving the heart is continuous with that of the heart
 - d) As in large arteries, there are no fibroblasts in the tunica media of muscular arteries
 - e) Metarterioles are yellowish in color from the accumulation of elastin and glycogen in their media.

Answer: E

- 11.Veins may possess valves in their interior. Which of the following statements is false about these valves?
- a) Direct venous blood towards the heart
 - b) Are lined on both sides by endothelium
 - c) Are especially abundant in the veins of the lower limbs
 - d) Have two semilunar folds of tunica intima that project into the lumen
 - e) Have a yellowish color from the accumulation of elastin and glycogen in the media

Answer: E

12.**Heart valves** normally consist of an endothelial surface covering:

- a. cardiac muscle fibers.
- b. hyaline cartilage.
- c. loose areolar connective tissue.
- d. fibrocollagenous and fibroelastic connective tissue.
- e. [adipose connective tissue.](#)

Answer: D

13. With regard to impulse generating and conducting system of the heart:

- a) Sinuatrial node is located on the lower aspect of the interatrial septal wall of the left atrium.
- b) Cells of the sinuatrial node are larger in size when compared to those of the ordinary cardiac myocytes.
- c) Cells of the sinuatrial node have more myofibrils than those of the ordinary cardiac myocytes.
- d) Atrioventricular node is bigger in size than the sinuatrial node.
- e) Purkinje cells, when seen under light microscopy following H & E staining, appear as large cells with clear zone surrounding centrally placed nucleus and denser peripheral cytoplasm.

Answer: E

14. Which of the following statements is *false* with regard to the *histology of the heart*?

- a) Ventricles contain more abundant elastic fibers than do the atria.
- b) Adipose tissue that generally surrounds the heart accumulates in the epicardium.
- c) The coronary arteries branch to supply the epicardium, myocardium, and endocardium.
- d) Endocardium is the thickest in atria and the thinnest in ventricles, especially the left ventricle.
- e) Cardiac muscle is more vascularized and has more abundant mitochondria than does skeletal muscle

Answer: C

15. Which statement is not correct with regard to the heart?

- a) Trabeculation is most marked in ventricles
- b) Pericardium is a connective tissue sac surrounding the heart
- c) Papillary muscles are the sites of attachment of chordae tendinae
- d) Nodal cells possess neither intercalated discs nor organized striation patterns
- e) Purkinje cells travel in subepicardial layer of the epicardium to apex of the heart.

Answer: E

16. Which of the following statements is not correct with regard to the histology of the heart?

- a) Ventricles contain abundant elastic fibers than the atria
- b) Adipose tissue that generally surrounds the heart accumulates in the epicardium
- c) The coronary arteries branch to supply the epicardium, myocardium and endocardium

- d) Purkinje cells travel in subendocardial layer of the endocardium to the apex of the heart
- e) Endocardium is the thickest in atria and the thinnest in ventricles, especially the left ventricle

Answer: C

17. Nodal cells:

- a) Are larger than atrial muscle cells.
- b) Are often multinucleated with abundant pinocytic vesicles
- c) Possess abundant myofibrils with organized striation pattern
- d) Possess intercalated discs with zonulae occludentes and hemidesmosomes
- e) Are modified cardiac muscle cells composed of irregular meshwork of muscle fibers

Answer: D

18. With regard to the cardiovascular system, which of the following is correct?

- a) Coronary and helicine arteries are typical muscular arteries with vasa vasorum in their tunica intima
- b) Cerebral and meningeal veins have a well developed media containing circular smooth cells
- c) Papillary muscles and trabeculae carneae muscles mark ventricular walls
- d) Vasa vasorum are more frequent in arteries than in veins
- e) The tunica adventitia tends to be the thickest and the most prominent in arteries than in veins

Answer: C

19. Which of the following is true for cardiomyocytes?

- a) Multinucleated
- b) Contain triads
- c) Contain peripherally located nucleus
- d) Lack T tubules
- e) Contain sarcoplasmic reticulum

Answer: E

Which of the following statement concerning cardiomyocytes is false

Contain less sarcoplasmic reticulum than skeletal muscle fibers

Situated in walls of ventricles and atria

Lie in the tunica media of vessel walls

Gap junctions facilitate communication between them

None of the above

Answer: C

