REVIEW QUESTIONS

1. Fenestrated membranes are located in
   a. the tunica adventitia.
   b. the tunica intima.
   c. muscular arteries.
   d. conducting arteries.
   e. arterioles.
2. Weibel-Palade bodies of blood vessels
   a. are located in the smooth muscles of the tunica media.
   b. are located in the fibroblasts of the tunica media.
   c. contain von Willebrand factor.
   d. contain endothelial relaxing factor (NO).
   e. contain prothrombin.
3. The tetralogy of Fallot is a congenital malformation that does not include
   a. ventricular septal defect.
   b. right atrial hypertrophy.
   c. pulmonary stenosis.
   d. overriding aorta.
   e. right ventricular hypertrophy.
4. Varicose veins are
   a. caused by increased muscle tone.
   b. due to valvular hypermobility.
   c. due to increased muscularity of the vessel wall.
   d. present in the anal region as hemorrhoids.
   e. constricted veins present usually in the upper extremities.
5. Capillaries are slender vessels whose lumina are just wide enough to permit red blood cells to pass through them. Capillaries with fenestrae
   a. are continuous capillaries.
   b. are sinusoidal capillaries.
   c. have no diaphragm over their fenestrae in the glomerulus.
   d. are located in the central nervous system.
   e. are located in skeletal muscle.
6. High endothelial-venules are located in the
   a. medulla of lymph nodes.
   b. cortex of lymph nodes.
   c. paracortex of lymph nodes.
   d. red pulp of the spleen.
   e. white pulp of the spleen.
7. A child is seen by her pediatrician and is diagnosed with rheumatic fever. The doctor informs the parents that the possible consequence of this disease is
   a. myocardial infarct.
   b. occlusion of the coronary sinus.
   c. patent foramen ovale.
   d. scarring of the mitral valve.
   e. ventricular septal defect.
8. Purkinje fibers
   a. are present in the cerebellum.
   b. initiate heart beat.
   c. are continuous with the atrioventricular node.
   d. are continuous with the sinoatrial node.
   e. are continuous with the atrioventricular bundle.
9. Young women who have had several spontaneous abortions during their teenage years may have anti-cardiolipin antibodies. These young women may
   a. have thromboses in their renal vein.
   b. have myocardial infarcts as teenagers.
   c. have cardiomyopathy.
   d. have valvular insufficiency.
   e. have rhabdomyosarcoma.
10. Elephantiasis is a disease that affects which of the following?
    a. Capillaries
    b. Arteries
    c. Lymph vessels
    d. Venules
    e. Veins

ANSWERS

1. D. Fenestrated membranes are elastic sheets that are located in the tunica media of elastic (conducting) arteries such as the aorta. In muscular arteries (distributing arteries), the tunica adventitia houses a fibroelastic connective tissue as well as a not-very-distinguished vasa vasorum. The tunica intima of muscular arteries houses the well-developed internal elastic lamina. The smooth muscle layers of arterioles are well developed with respect to the size of these vessels.
2. C. Weibel-Palade bodies are membrane-bound inclusions in the endothelial cells of blood vessels. These long and narrow granules contain von Willebrand factor, a glycoprotein that facilitates the coagulation of blood by encouraging platelets to adhere to each other.
3. B. Right atrial hypertrophy is not a condition associated with the tetralogy of Fallot. This condition permits the mixing of oxygenated with nonoxygenated blood, resulting in a somewhat cyanotic condition and lack of energy for the afflicted individual.
4. D. Hemorrhoids are varicose veins of the anal region. There are internal and external hemorrhoids according to their location with respect to the external anal sphincter. They are usually caused by decreased muscle tone and valvular incompetence as well as by degeneration of the vessel wall. Varicose veins are dilated.
5. C. Fenestrated capillaries always have a thin diaphragm over their fenestrae, except in the glomerulus of the kidney. There are three types of capillaries: fenestrated, continuous, and sinusoidal. Both skeletal muscle and the central nervous system possess continuous capillaries.
6. C. High endothelial venules are lined by a simple cuboidal rather than a simple squamous epithelium. It is a region where lymphocytes preferentially leave the bloodstream to enter the paracortex of lymph nodes and the marginal zone of the spleen.
7. D. Rheumatic fever in children may develop into rheumatic heart valve disease as a result of the scarring of the valves of the heart. The most common sites of the scarring are the mitral and aortic valves. Myocardial infarct and occlusion of the coronary sinus do not occur because of rheumatic fever. Patent foramen ovale and ventricular septal defects are developmental anomalies and do not occur as a consequence of rheumatic fever.
8. E. Purkinje fibers are the terminal continuation of the atrioventricular bundle. Purkinje cells, not Purkinje fibers, are present in the cerebellum. The heart beat is initiated by the sinoatrial node, and it sends the information to the atrial muscles as well as to the atrioventricular node. The atrioventricular bundle (bundle of His) arises from the atrioventricular node; it bifurcates to form the Purkinje fibers, which transmit impulses to the cardiac muscle cells located at the apex of the heart.
9. A. Young women who have undergone several spontaneous abortions may form antibodies against their cardiolipin molecules; as a consequence, they form thromboses even in their renal or hepatic veins. As a consequence of the antibodies, they do not have myocardial infarcts. Individuals who have a hereditary incapability to form the enzyme tafazzin cannot synthesize cardiolipins; therefore, their mitochondria cannot synthesize an adequate amount of ATP. Many of these patients have cardiomyopathy. Their cardiac valves are normal. Rhabdomyosarcoma is a cancer of skeletal muscle.
10. C. Elephantiasis is a blockage of the lymph vessels by the parasite *Brugia timori* and other filarial parasites (although there are cases of elephantiasis when filarial parasites are not involved). Capillaries, arteries, venules, and veins are not affected by filarial parasites.