NAME _____

LAB TIME/DATE _____

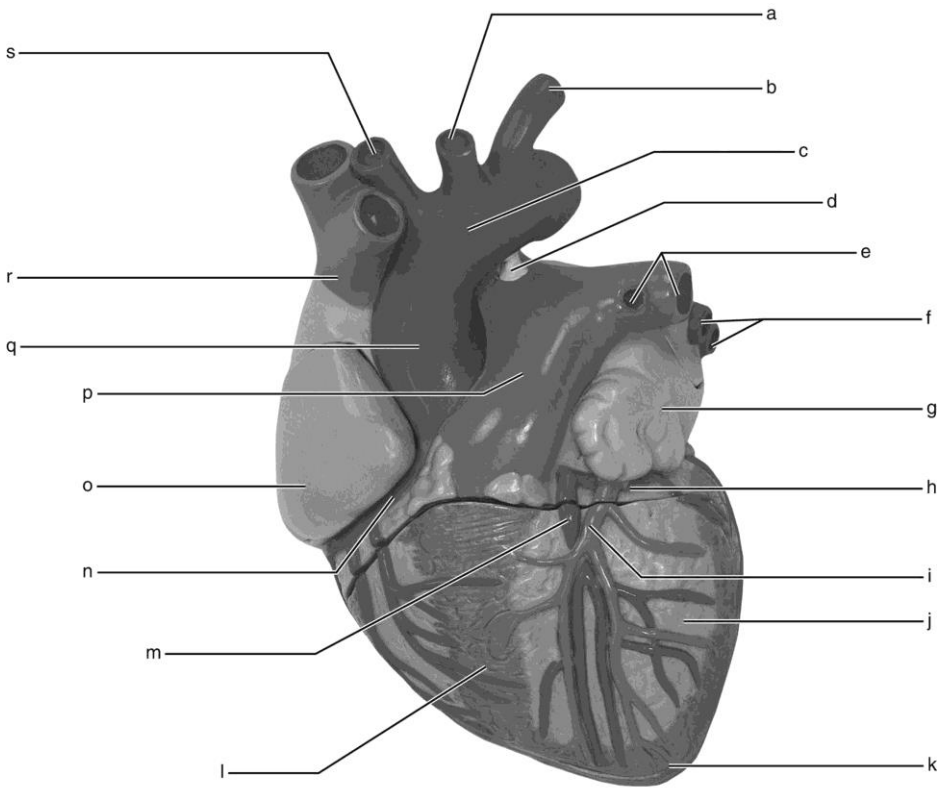
REVIEW SHEET EXERCISE 30

Anatomy of the Heart

Gross Anatomy of the Human Heart

1. An anterior view of the heart is shown here. Match each structure listed on the left with the correct letter in the figure.

o 1. right atrium
l 2. right ventricle
g 3. left atrium
j 4. left ventricle
r 5. superior vena cava
q 6. ascending aorta
c 7. aortic arch
s 8. brachiocephalic trunk
a 9. left common carotid artery
b 10. left subclavian artery
p 11. pulmonary trunk
e 12. left pulmonary arteries
d 13. ligamentum arteriosum
f 14. left pulmonary veins
n 15. right coronary artery
h 16. circumflex artery
m 17. anterior interventricular artery
k 18. apex of heart
i 19. great cardiac vein



2. What is the function of the fluid that fills the pericardial sac? *To reduce friction during heart activity.*

3. Match the terms in the key to the descriptions provided below.

Key:

a. atria
b. atrioventricular valves
c. coronary arteries
d. coronary sinus
e. endocardium
f. epicardium
g. mediastinum
h. myocardium
i. semilunar valves
j. ventricles

g 1. location of the heart in the thorax
b 2. tricuspid and mitral valves
j 3. discharging chambers of the heart
f 4. visceral pericardium
a 5. receiving chambers of the heart
h 6. layer composed of cardiac muscle
c 7. provide nutrient blood to the heart muscle
e 8. lining of the heart chambers
i 9. pulmonary and aortic valves
d 10. drains blood into the right atrium

4. Which valves are anchored by chordae tendineae? *The AV valves (tricuspid and bicuspid/mitral).*

5. Which valves close when the cusps fill with blood? *The semilunar valves (pulmonary and aortic).*

Pulmonary, Systemic, and Coronary Circulations

6. Describe the role of the pulmonary circuit. *The pulmonary circuit moves blood out of the right side of the heart through the lungs and returns to the left side of the heart. The function of the pulmonary circuit is gas exchange.*

7. Describe the role of the systemic circuit. *The systemic circuit moves blood out of the left side of the heart through the body and return it to the right side of the heart. The systemic circuit provides the functional supply of oxygen and nutrients to the body tissues and returns carbon dioxide so that it may be eliminated in the pulmonary circuit.*

8. Name the three vessels that deliver oxygen-poor blood to the right atrium.

The coronary sinus, superior, and inferior vena cava.

9. Starting with the right atrium, trace a drop of blood through the heart and lungs, naming the following structures: aorta, aortic valve, left atrium, left ventricle, mitral valve, pulmonary arteries, pulmonary capillaries, pulmonary valve, pulmonary trunk, pulmonary veins, right atrium, right ventricle, and tricuspid valve.

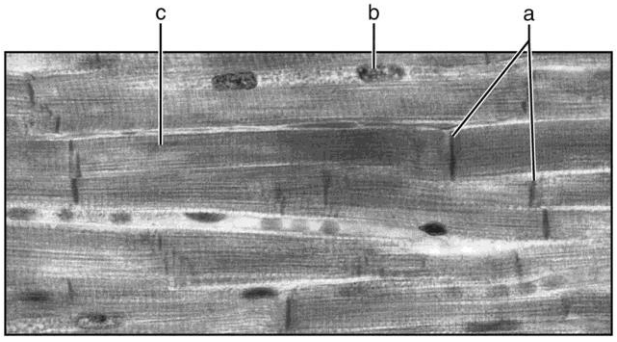
1. *right atrium*
2. *tricuspid valve*
3. *right ventricle*
4. *pulmonary valve*
5. *pulmonary trunk*
6. *pulmonary arteries*
7. *pulmonary capillaries*
8. *pulmonary veins*
9. *left atrium*
10. *mitral valve*
11. *left ventricle*
12. *aortic valve*
13. *aorta*

Microscopic Anatomy of Cardiac Muscle

10. How would you distinguish the structure of cardiac muscle from that of skeletal muscle? *Both tissue types are striated; thus, this is not a distinguishing feature. Skeletal muscle cells are long cylindrical cells with many peripherally located nuclei per cell. Cardiac cells have one (or two) centrally located nuclei per cell; their branched ends fit together at tight junctions called intercalated discs, which are not seen in skeletal muscle.*

11. Add the following terms to the photograph of cardiac muscle below.

a. intercalated discs b. nucleus c. cardiac muscle cell



Describe the unique anatomical features of cardiac muscle. What role does the unique structure of cardiac muscle play in its function?

Cardiac muscle cells form a functional syncytium by virtue of their intercalated discs. This structural feature plus the special arrangement of cardiac muscle in the heart allows the pumping action of the heart to be carefully coordinated for maximal efficiency.

Dissection of the Sheep Heart

14. Compare and contrast the structure of the mitral and tricuspid valves. *Both have thin flaps secured to papillary muscles by chordae tendineae. The right valve has three cusps; the left valve has two.*

