

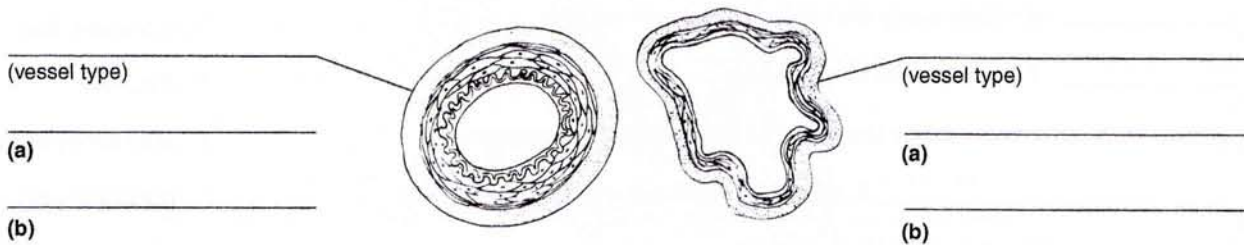
# REVIEW SHEET

## Anatomy of Blood Vessels

Name \_\_\_\_\_ Lab Time/Date \_\_\_\_\_

### Microscopic Structure of the Blood Vessels

1. Cross-sectional views of an artery and of a vein are shown here. Identify each; on the lines to the sides, note the structural details that enabled you to make these identifications:



Now describe each tunic more fully by selecting its characteristics from the key below and placing the appropriate key letters on the answer lines.

Tunica intima \_\_\_\_\_ Tunica media \_\_\_\_\_ Tunica externa \_\_\_\_\_

Key:

- a. innermost tunic
- b. most superficial tunic
- c. thin tunic of capillaries
- d. regulates blood vessel diameter
- e. contains smooth muscle and elastin
- f. has a smooth surface to decrease resistance to blood flow

2. Why are valves present in veins but not in arteries? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Name two events *occurring within the body* that aid in venous return.  
 \_\_\_\_\_ and \_\_\_\_\_

4. Considering their functional differences, why do you think the walls of arteries are proportionately thicker than those of the corresponding veins? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Major Systemic Arteries and Veins of the Body

5. Use the key on the right to identify the arteries or veins described on the left. Some terms are used more than once.

- Key:
- a. anterior tibial
  - b. basilic
  - c. brachial
  - d. brachiocephalic
  - e. celiac trunk
  - f. cephalic
  - g. common carotid
  - h. common iliac
  - i. coronary
  - j. deep artery of the thigh
  - k. dorsalis pedis
  - l. external carotid
  - m. femoral
  - n. fibular
  - o. great saphenous
  - p. hepatic
  - q. inferior mesenteric
  - r. internal carotid
  - s. internal iliac
  - t. phrenic
  - u. posterior tibial
  - v. radial
  - w. renal
  - x. subclavian
  - y. superior mesenteric
  - z. vertebral

- \_\_\_\_\_ 1. the arterial system has one of these; the venous system has two
- \_\_\_\_\_ 2. these arteries supply the myocardium
- \_\_\_\_\_, \_\_\_\_\_ 3. two paired arteries serving the brain
- \_\_\_\_\_ 4. longest vein in the lower limb
- \_\_\_\_\_ 5. artery on the dorsum of the foot
- \_\_\_\_\_ 6. main artery that serves the thigh muscles
- \_\_\_\_\_ 7. supplies the diaphragm
- \_\_\_\_\_ 8. formed by the union of the radial and ulnar veins
- \_\_\_\_\_, \_\_\_\_\_ 9. two superficial veins of the arm
- \_\_\_\_\_ 10. artery serving the kidney
- \_\_\_\_\_ 11. veins draining the liver
- \_\_\_\_\_ 12. artery that supplies the distal half of the large intestine
- \_\_\_\_\_ 13. drains the pelvic organs
- \_\_\_\_\_ 14. what the external iliac artery becomes on entry into the thigh
- \_\_\_\_\_ 15. artery that branches into radial and ulnar arteries
- \_\_\_\_\_ 16. supplies most of the small intestine
- \_\_\_\_\_ 17. join to form the inferior vena cava
- \_\_\_\_\_ 18. an arterial trunk that has three major branches, which run to the liver, spleen, and stomach
- \_\_\_\_\_ 19. major artery serving the tissues external to the skull
- \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ 20. four veins serving the leg
- \_\_\_\_\_ 21. artery generally used to take the pulse at the wrist

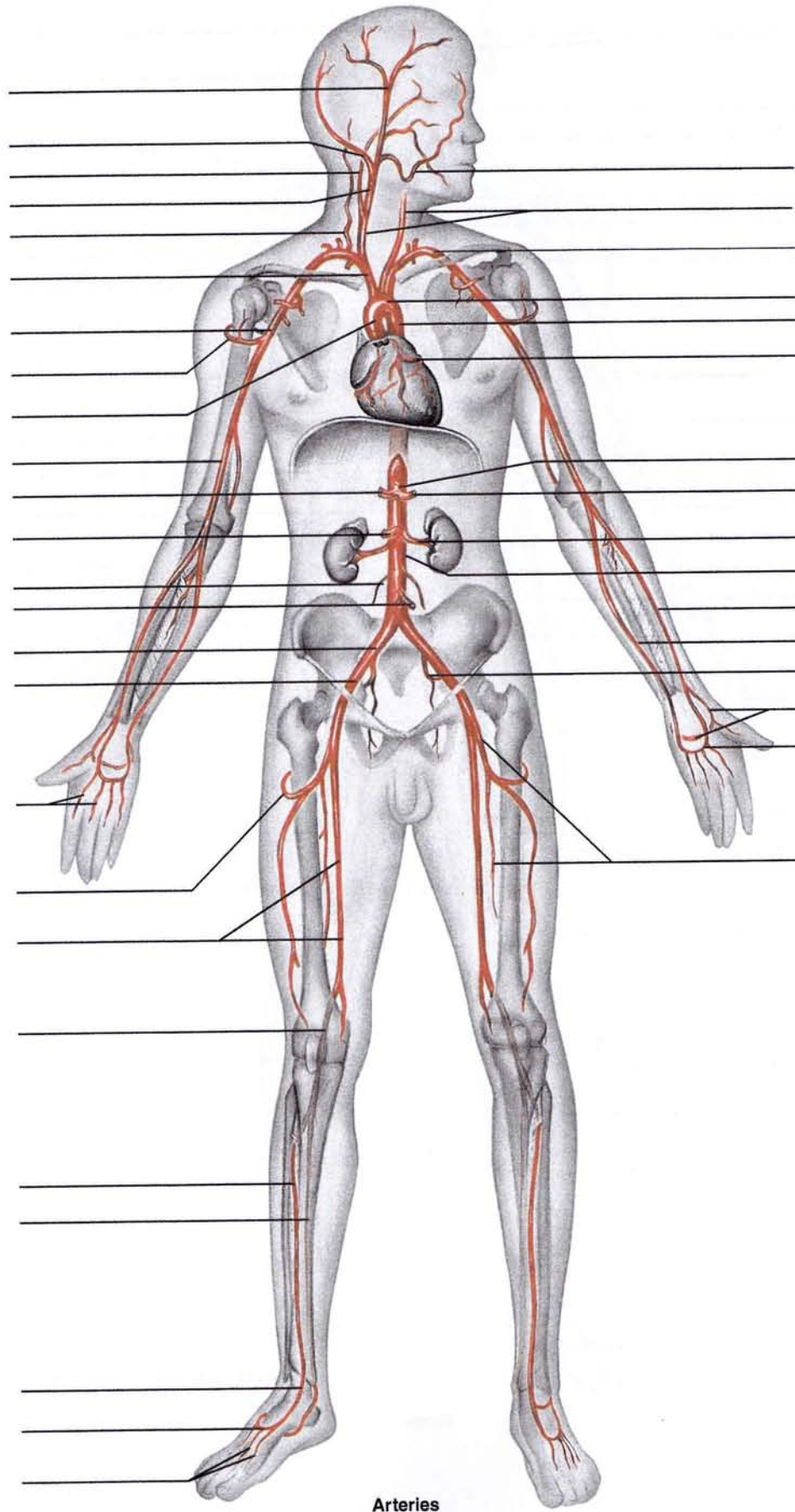
6. What is the function of the cerebral arterial circle?

7. The anterior and middle cerebral arteries arise from the \_\_\_\_\_ artery.

They serve the \_\_\_\_\_ of the brain.

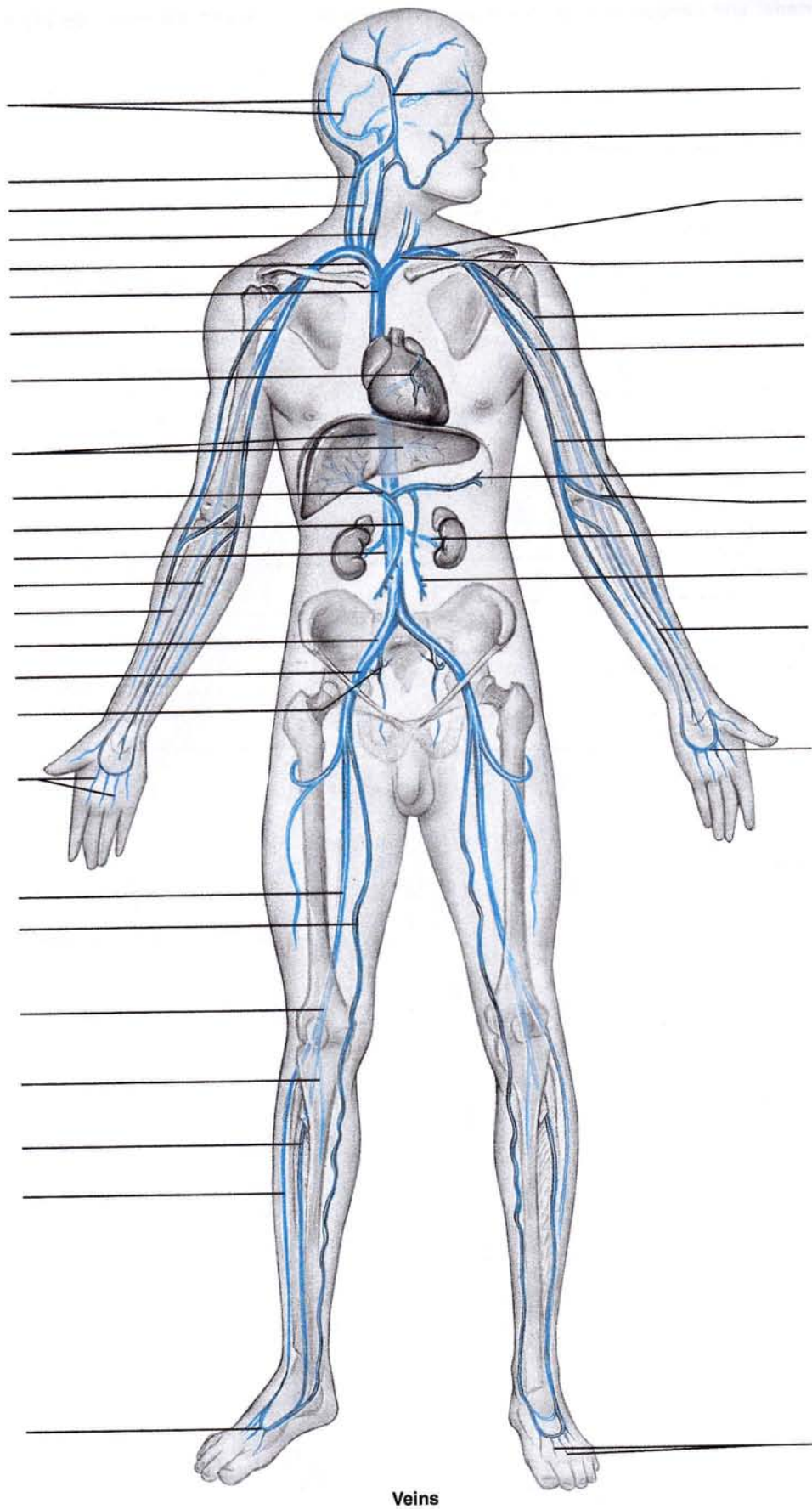
8. Trace the pathway of a drop of blood from the aorta to the left occipital lobe of the brain, noting all structures through which it flows. \_\_\_\_\_

9. The human arterial and venous systems are diagrammed on this page and the next. Identify all indicated blood vessels.



Arteries

# Anatomy of Blood Vessels



## Anatomy of Blood Vessels

10. Trace the blood flow for each of the following situations.

a. from the capillary beds of the left thumb to the capillary beds of the right thumb: \_\_\_\_\_

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b. from the mitral valve to the tricuspid valve by way of the great toe: \_\_\_\_\_

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## Pulmonary Circulation

11. Trace the pathway of a carbon dioxide gas molecule in the blood from the inferior vena cava until it leaves the bloodstream. Name all structures (vessels, heart chambers, and others) passed through en route.

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12. Trace the pathway of oxygen gas molecules from an alveolus of the lung to the right ventricle of the heart. Name all structures through which it passes. **Circle the areas of gas exchange.** \_\_\_\_\_

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13. Most arteries of the adult body carry oxygen-rich blood, and the veins carry oxygen-poor blood.

How does this differ in the pulmonary arteries and veins? \_\_\_\_\_

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14. How do the arteries of the pulmonary circulation differ structurally from the systemic arteries? What condition is indicated by this anatomical difference? \_\_\_\_\_

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## Fetal Circulation

15. For each of the following structures, first indicate its function in the fetus; and then note its fate (what happens to it or what it is converted to after birth). **Circle the blood vessel that carries the most oxygen-rich blood.**

| Structure         | Function in fetus | Fate and postnatal structure |
|-------------------|-------------------|------------------------------|
| Umbilical artery  |                   |                              |
| Umbilical vein    |                   |                              |
| Ductus venosus    |                   |                              |
| Ductus arteriosus |                   |                              |
| Foramen ovale     |                   |                              |

16. What organ serves as a respiratory/digestive/excretory organ for the fetus? \_\_\_\_\_

## Hepatic Portal Circulation

17. What is the source of blood in the hepatic portal system? \_\_\_\_\_

18. Why is this blood carried to the liver before it enters the systemic circulation? \_\_\_\_\_

19. The hepatic portal vein is formed by the union of the \_\_\_\_\_ and the \_\_\_\_\_.

The \_\_\_\_\_ vein carries blood from the \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

The \_\_\_\_\_ vein drains the \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

The \_\_\_\_\_ vein empties into the splenic vein and drains the \_\_\_\_\_ and \_\_\_\_\_.

20. Trace the flow of a drop of blood from the small intestine to the right atrium of the heart, noting all structures encountered or passed through on the way. \_\_\_\_\_