

**Saladin 7E**  
**Answer Key**

**Chapter 20, The Circulatory System: Blood Vessels and Circulation**

**Testing Your Comprehension**

1. For one thing, the “age + 100” estimate does not take into account male–female differences in normal blood pressure. It also does not compare very well with the healthy values given in table 20.1. For example, it predicts that an 80-year-old should have a systolic blood pressure of 180, whereas the actual healthy systolic pressure should be 145 for men and 157 for women.
2. At this point the capillary would have a net filtration pressure of  $(28 + 2 + 4 \text{ mm Hg})_{\text{out}} - 25 \text{ mm Hg}_{\text{in}} = 9 \text{ mm Hg}_{\text{out}}$ .
3. There is no direct route to the nearby kidney. The aldosterone would have to travel “the scenic route”: adrenal cortex → suprarenal vein → inferior vena cava → heart → pulmonary trunk and arteries → lungs → pulmonary veins → heart → aorta → renal artery → kidney.
4. The reduced perfusion of the skin accounts for its paleness and coolness. The drop in blood pressure stimulates the baroreceptors and, in turn, the cardiac center of the medulla oblongata, which sends cardioacceleratory signals to the heart and increases the heart rate. The pulse is weak because the blood pressure is low.
5. An adequate or even high blood pressure in the common iliac arteries or some other lower point would not necessarily mean that there was adequate pressure higher in the body, because gravity draws blood downward. If the blood pressure above the heart is adequate, however, it is almost certain to be adequate in the lower limbs and it is likely that the brain is also being adequately perfused.