

1. What are the four processes under pharmacokinetics?
2. Define parenteral route and present the different routes.
3. Explain why prodrugs are used for oral administration.
4. What are the possible disadvantages of oral administration of drugs?
5. What are the disadvantages of rectal administration of drugs?
6. Discuss the two reasons why inhalation allows for quick absorption.
7. Describe the structural features of the blood–brain barrier.
8. How many half-lives does it take to reach a steady-state plasma concentration? Show the calculations to demonstrate this effect.

Answer Key

1. 1) absorption, 2) distribution, 3) metabolism, 4) elimination.
2. Parenteral: administration not involving the GI tract; injection, inhalation, skin absorption, mucous membrane absorption.
3. Anticipation of chemical conversion to active agent during digestion.
4. 1) stomach distress, 2) genetic differences, 3) manufacturing differences, 4) stomach acid can destroy some drugs.
5. Absorption can be irregular, unpredictable, incomplete, and irritate lining of rectum.
6. 1) large surface area of lungs, 2) lung capillaries feed directly to the heart via the pulmonary vein.
7. Astrocytes and capillary; tight junctions; molecule size and lipid solubility.
8. 5 to 6 half-lives.