

Advanced Pharmacology Fundamentals

Pharmacology · Answer Key · 10 Questions

1. Which enzyme is primarily responsible for the phase I metabolism of the majority of clinically used drugs?

- A) Cytochrome P450 2D6
- B) Cytochrome P450 3A4**
- C) UDP-glucuronosyltransferase
- D) Flavin-containing monooxygenase

2. What is the primary mechanism of action of non-steroidal anti-inflammatory drugs (NSAIDs) like aspirin?

- A) Inhibition of COX-1 and COX-2 enzymes**
- B) Antagonism of peripheral opioid receptors
- C) Inhibition of leukotriene synthesis
- D) Blockade of H1 histamine receptors

3. Which pharmacokinetic parameter describes the volume of plasma cleared of a drug per unit time?

- A) Volume of distribution
- B) Half-life
- C) Clearance**
- D) Bioavailability

4. What is the molecular target of the class of drugs known as benzodiazepines?

- A) GABA-A receptor chloride channel complex**
- B) NMDA glutamate receptor
- C) Voltage-gated calcium channels
- D) Acetylcholinesterase

5. Which neurotransmitter is primarily targeted by Selective Serotonin Reuptake Inhibitors (SSRIs)?

- A) Dopamine
- B) Norepinephrine
- C) Acetylcholine
- D) Serotonin**

6. The therapeutic index of a drug is calculated as the ratio of which two values?

- A) ED50 to LD50
- B) LD50 to ED50**
- C) EC50 to Emax
- D) Total dose to plasma concentration

7. Which specific class of antibiotics works by inhibiting bacterial cell wall synthesis through the binding to Penicillin-Binding Proteins (PBPs)?

- A) Aminoglycosides
- B) Tetracyclines
- C) Beta-lactams**
- D) Macrolides

8. What defines the pharmacodynamic property of 'efficacy' (Emax) in a drug-receptor interaction?

- A) The affinity of the drug for the receptor
- B) The concentration required to produce 50% of the maximum effect
- C) The maximum response that can be elicited by a drug**
- D) The time taken to reach peak plasma concentration

9. Which physiological process is enhanced by the administration of an ACE inhibitor?

- A) Angiotensin II production
- B) Bradykinin degradation**
- C) Vasoconstriction
- D) Aldosterone secretion

10. What is the primary mechanism by which warfarin exerts its anticoagulant effect?

- A) Inhibition of vitamin K epoxide reductase**
- B) Direct inhibition of thrombin
- C) Inhibition of factor Xa
- D) Activation of antithrombin III