

University Medicine

Name: _____ Score: _____

1. A drug has a volume of distribution of 500 L in a 70 kg adult. What does this tell you?
 - ☐ It stays in the plasma
 - ☐ It is heavily bound in the tissues
 - ☐ It is cleared very fast
 - ☐ The patient has severe oedema
2. Drug X has EC_{50} 0.5 mg and drug Y has EC_{50} 5 mg; both reach the same E_{max} . Which statement is right?
 - ☐ Y is more potent
 - ☐ X is more potent; they are equally efficacious
 - ☐ Y has the higher ceiling
 - ☐ X is more efficacious
3. Which drug type relieves an asthma attack?
 - ☐ $\alpha 1$ agonist
 - ☐ $\beta 2$ blocker
 - ☐ Muscarinic agonist
 - ☐ $\beta 2$ agonist
4. Which diuretic lowers potassium but keeps calcium?
 - ☐ None of these
 - ☐ Thiazide
 - ☐ Loop
 - ☐ Potassium-sparing
5. β -lactams are selective because human cells have no cell wall.
 - ☐ True ☐ False
6. Which sign makes an opioid overdose most dangerous?
 - ☐ Slowed breathing
 - ☐ Small pupils
 - ☐ Constipation
 - ☐ Itching

7. Enzyme inhibition begins with the first doses, but enzyme induction takes days.

☐ True ☐ False

8. (Illustrative) $V_d = 70$ L and $CL = 7$ L/h. What is the half-life? Use 0.693.

_____ h

9. A partial agonist has $E_{max} = 80\%$ of the system's maximum. What effect does it give at its EC_{50} ?

_____ %

10. Muscarinic stimulation slows the gut.

☐ True ☐ False

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1. **It is heavily bound in the tissues**

Little drug stays in the blood, so the apparent volume is huge.

2. **X is more potent; they are equally efficacious**

Lower EC_{50} means more potent; the same ceiling means the same efficacy.

3. **$\beta 2$ agonist**

$\beta 2$ stimulation opens the airways.

4. **Thiazide**

Thiazides lose K^+ but increase calcium reabsorption.

5. **True**

The target does not exist in our cells.

6. **Slowed breathing**

Respiratory depression is what kills.

7. **True**

Inhibition blocks existing enzyme; induction must build new enzyme.

8. **6.93 h**

$0.693 \times 70 \div 7 = 6.93 \text{ h}$.

9. **40 %**

EC_{50} gives half the drug's own maximum, $80 \div 2 = 40\%$.

10. **False**

It speeds the gut, causing cramps and diarrhoea.