

## 31. PARENTERAL PREPARATIONS

### Large Volume Parenteral Preparations

#### Practice 31.7.

Compound Sodium Chloride Injection Solution (USP 27)

*Ringer's Injection*

Sodium chloride	8.60 g
Potassium chloride	0.30 g
Calcium chloride. 2H <sub>2</sub> O	0.33 g
Water for injection	q.s. 1000.00 ml

#### Preparation:

Sodium chloride, potassium chloride and calcium chloride are dissolved in some water for injection in a beaker and the solution is taken in a graduated cylinder to complete the desired volume. After the solution is filtered from the porcelain, membrane or glass filter into the bottle, the bottle is appropriately sealed. The bottles are sterilized for at least 15 min at 121 ° C and under 1 atm pressure in an autoclave and labeled appropriately.

#### Questions:

1. Calculate the mEq / L value of sodium, potassium and calcium in the formulation.
2. Describe the intended use of this solution.
3. How is this solution used and what is the dose of it?
4. Calculate the amounts of CaCl<sub>2</sub>.6H<sub>2</sub>O, KCl, NaCl in the formulation of a solution containing 2.7 mEq / L of calcium, 4 mEq / L of potassium and 130 mEq / L of sodium in a liter.

### Practice 31.8.

#### Cholera Solution for Rehydration

(General and Industrial Pharmaceutical Technology Student Experimental Studies - 1985)

Sodium chloride	5.0 g
Sodium bicarbonate	4.0 g
Potassium chloride	1.0 g
Water for injection	q.s. 1000.0 ml

#### Preparation:

Sodium chloride, potassium chloride, and sodium bicarbonate are dissolved in some water for injection in a beaker, then the solution is transferred to a graduated cylinder. The desired volume is completed with water for injection. The solution is filtered from the membrane or glass filter into the bottle then the bottle is sealed appropriately. The bottles are sterilized for at least 15 min at 121 ° C and under 1 atm pressure in an autoclave and labeled appropriately.

#### Questions:

1. Calculate the amounts of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{HCO}_3^-$ ,  $\text{Cl}^-$  ions as mEq / L in 1000 ml of cholera solution according to the formulation.
2. What type of glass bottle should this solution be filled in and which route of administration is used?
3. Calculate the osmotic pressure of this solution.

## 32.2. Nasal Preparations

### Practice 32.9.

#### Ephedrine Sulphate Nasal Drop

Ephedrine Sulphate		0.5 g
Secondary sodium phosphate		0.5 g
Primary sodium phosphate		0.5 g
Sodium chloride		0.15 g
Potassium chloride		0.15 g
Anhydr glucose		1.0 g
Chlorobutanol		0.5 g
Purified water	q.s.	100 ml

Prepare 15 ml

#### Preparation:

Potassium chloride, sodium chloride, secondary sodium phosphate, primary sodium phosphate, chlorbutanol, and glucose are dissolved in a small amount of purified water. Mix this solution with ephedrine sulphate. With the remaining water, final volume of solution is completed to 100 ml. The solution is filtered by a suitable glass filter and labeled in appropriate packaging.

#### Questions:

1. Write the intended use of all the substances in the formula.
2. Indicate the tonicity of this drug by calculating with the NaCl-equivalan method.
3. Measure the pH of your solution. Write about the importance of pH in nasal solutions.
4. How should the packaging of this preparation be? Why?