Practice Problems – Chapters 11 and 12

1. How many grams of sodium chloride should be used in compounding the following prescription? The E value for pilocarpine nitrate is 0.23.

Pilocarpine nitrate 0.8 g Sodium chloride q.s. Purified water 40 mL Make isoton. Sol. Sig. For the eye

Solution: http://mercerhsc.net/calc/ch11and12/prob001.mp4

2. How many mg of sodium chloride are required to prepare 30 mL of a 1% solution of dibucaine hydrochloride isotonic with tears? Dibucaine hydrochloride has a freezing point lowering of 0.08 degrees and sodium chloride lowers the freezing point by 0.58 degrees.

Solution: http://mercerhsc.net/calc/ch11and12/prob002.mp4

3. What is the pH of a buffer solution prepared with 0.05 M sodium borate and 0.008 M boric acid? The pKa value of boric acid is 9.24 at 25 degrees C.

Solution: http://mercerhsc.net/calc/ch11and12/prob003.mp4

4. A solution contains 14 mg/100mL of K+ ions. Express this concentration in terms of mEq/L (Atomic weight of K+ = 39).

Solution: http://mercerhsc.net/calc/ch11and12/prob004.mp4

5. A person is to receive 3 mEq of sodium chloride per kg of body weight. If the person weighs 185 lb, how many mL of a 0.9% sterile solution of sodium chloride should be administered (molecular weight of NaCl = 58.5)?

Solution: http://mercerhsc.net/calc/ch11and12/prob005.mp4

6. Calculate the osmolarity of the following parenteral fluid (molecular weights: NaCl = 58.5, KCl = 74.5, anhydrous dextrose = 180).

Dextrose, anhydrous 50 g Sodium Chloride 4.5 g Potassium Chloride 1.65 g Water for injection, ad 1000 mL

Solution: http://mercerhsc.net/calc/ch11and12/prob006.mp4

7. How many milliequivalents (mEq) of potassium chloride (m.w. 74.5) are represented in a 15 mL dose of a 8% (w/v) potassium chloride elixir? Round your answer to the nearest tenth and use the abbreviated units.

Solution: http://mercerhsc.net/calc/ch11and12/prob007.mp4

Answers:

- 1. 0.176 g
- 2. 228 mg
- 3. 10.04
- 4. 3.59 mEq/L
- 5. 1638 mL
- 6. 476 mOsmol
- 7. 16.1 mEq