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Question 1

Not complete

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Dopamine HCl Injection is available on the market in a volume of 20 mL containing dopamine HCl at a concentration of 40 mg/mL. If 10 mL of the injection is mixed with 500 mL of a solution of sodium chloride 0.9% w/v, and the mixture administered into the vein of a patient at the rate of 10 mL/min, what is the rate of administration of dopamine HCl? (Assume that the total volume of the mixture is 500 mL)

Select one:

- ☐ 4mg/min
☐ 12mg/min
☐ 6mg/min
☒ 8mg/min
☐ 10mg/min

Check

- 20ml Dopamine HCl inj:
 concentration 40mg/mL
 - in 10ml = $40\text{mg/mL} \times 10\text{ml}$
 $= 400\text{mg in } 10\text{ml}$
 - added to 500ml = $400\text{mg in } 500\text{ml}$
 $= 0.8\text{mg/mL}$
 - rate = 10ml/min
 - in 10ml = $0.8\text{mg/mL} \times 10$
 $= 8\text{mg in } 10\text{ml}$
 - rate = 8mg in min

Question 2

Not complete

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A medical practitioner asks for a solution to be prepared containing 500 mg of antibiotic dissolved in 2000 mL of a solution containing 5.5% w/v glucose, which is to be infused into the vein of a patient. The antibiotic is available in a small glass container as powdered drug (3 g), and is reconstituted in water such that the final volume is 10 mL. What volume of the reconstituted solution is required for the preparation of 2000 mL of the infusion solution?

Select one:

- ☐ 2.1ml
☐ 0.73ml
☒ 1.67ml
☐ 0.87ml
☐ 2.34ml

Check

abx 3g reconstituted
 to a volume of
 10 mL
 ↳ what volume
 of this is needed
 to prepare
 2000 mL of
 the infusion
 solution

500mg abx in 2000ml of solution
 ↳ contains
 5.5% w/v glucose
 need:
 - 500mg in 2000ml
 abx reconstituted: 3g in 10ml
 $= 0.3\text{g/mL}$
 $= 300\text{mg/mL}$
 ml required: $\frac{500\text{mg}}{300\text{mg/mL}}$
 $= 1.67\text{ml}$

Question 3

Not complete

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If 10 mL of Hydrochloric Acid B.P. (36% w/w, wt/mL of 1.18) has been added to a product for oral administration which has a final volume of 250 mL, how much chloride will be administered with each 10 mL dose?

HCl has a molecular mass of 36.5.

Select one:

- ☐ 4.12mmol
☐ 4.82mmol
☐ 4.24mmol
☒ 4.66mmol
☐ 4.78mmol

Check

$$C_1 V_1 = C_2 V_2$$

$$C_2 = \frac{C_1 V_1}{V_2}$$

$$= \frac{42.5 \times 10}{250}$$

$$= 1.7\% \text{ w/v}$$

$$= 1.7\text{g}/100\text{mL}$$

$$\therefore \text{in } 10\text{mL} = 0.17\text{g}$$

$$C_1 = 42.5\% \text{ w/v}$$

$$V_1 = 10\text{mL}$$

$$C_2 = ?$$

$$V_2 = 250\text{mL}$$

$$n = \frac{m}{M} = \frac{0.17}{36.5} = 0.00465753424\text{mol}$$

$$= 4.66\text{mmol}$$

Question 4
Not complete
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If a pharmacist adds 3g of hydrocortisone to 40g of an ointment - 5% hydrocortisone. What is the final strength of the product?

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Select one:

- ☐ 10.2%
☐ 9.8%
☐ 12.4%
☒ 11.6%
☐ 13.4%

Check

5g in 100g
in 40g = 2g of hydrocortisone
3g of hydrocortisone

Question 5
Not complete
Marked out of 1.00

43g ointment w/ 5g hydrocortisone
 $5/43 = 0.1162790698 \times 100$
11.6g in 100g = 11.6% w/w

A working formula for preparing an ointment requires 15g of wool fat. However, only lanolin (which contains 85% wool fat) is available. How much lanolin should be included in the formula?

Select one:

- ☒ 17.6g
☐ 17.3g
☐ 16.7g
☐ 16.2g
☐ 18.6g

Check

- need 15g wool fat.
- Lanolin 85% wool fat.
- 85g in 100g.
0.85g / g.
- $\frac{15g}{0.85g/g}$
- 17.65g of lanolin is required.