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Question 1

Not changed since last attempt

Marked out of 1.00

How much of a 0.5% injection of midazolam is required when a dose of 15mg is prescribed?

Select one:

- ☐ 0.25mL
☐ 0.75mL
☐ 2.5mL
☒ 3.0mL
☐ 7.5mL

$$0.5g \text{ in } 100ml$$

$$0.005g \text{ per ml}$$

$$5mg \text{ per ml}$$

$$\frac{15mg}{5mg/ml}$$

$$= 3 \text{ ml}$$

Question 2

Not changed since last attempt

Marked out of 1.00

Paediatric suspensions of phenytoin contain 30 mg/5 mL. If the required oral dose of phenytoin is 7 mg/kg/day given as two divided doses, what volume of which mixture should each dose be so that it delivers the recommended dose to a child weighing 30 kg?

Select one:

- ☐ 7.5mL
☐ 10.5mL
☐ 12.0mL
☒ 17.5mL
☐ 18.0mL

$$7 \text{ mg/kg/day}$$

$$\text{as 2 divided doses}$$

$$= (210 \text{ mg/day}) / 2$$

$$= 105 \text{ mg}$$

$$\frac{105 \text{ mg}}{6 \text{ mg/ml}} \times (2 \text{ doses})$$

$$= 17.5 \text{ ml each dose}$$

Question 3

Not changed since last attempt

Marked out of 1.00

What volume of Acetic Acid B.P. (33% w/w, weight/ml of 1.041) is required for the preparation of 2 litres of a solution containing acetic acid at a concentration of 10% w/v? (The molecular weight of acetic acid is 60.0).

Select one:

- ☐ 467mL
☐ 506mL
☒ 582mL
☐ 606mL
☐ 630mL

$$C_1 V_1 = C_2 V_2$$

$$34.35\% \times V = 10\% \times 2000 \text{ ml}$$

$$V = \frac{10 \times 2000}{34.35}$$

$$= 582 \text{ ml}$$

$$V_2 = 2L = 2000 \text{ ml}$$

$$C_2 = 10\% \text{ w/v}$$

$$V_1 = ?$$

$$C_1 = 33\% \text{ w/w}$$

$$= 34.353\% \text{ w/v}$$

$$V_2 = 2000 \text{ ml}$$

$$C_2 = 10\% \text{ w/v}$$

$$10 \text{ g per}$$

$$V_1 = \frac{C_2 V_2}{C_1} = \frac{10 \times 2000}{33}$$

$$V_1 = 606 \text{ ml}$$

$$C_1 V_1 = C_2 V_2$$

$$C_1 = 33$$

$$V_1 = ?$$

$$0.33$$

Concentration
 of acetic acid
 B.P.

$$33 \text{ g in } 100 \text{ g}$$

$$\text{or } 0.33 \text{ g per g}$$

10% acetic acid
 concentration =

$$1.041 \text{ g per ml}$$

$$0.33 \times 1.041$$

$$\Rightarrow 0.33\% \text{ of } 1.041 \text{ g is acetic acid}$$

$$= 0.34353 \text{ g per ml} \times 100$$

$$= 34.353 \text{ g in } 100 \text{ ml}$$

$$= 34.353\% \text{ w/v}$$

Question 4

Not changed since last attempt

Marked out of 1.00

What volume of chlorhexidine gluconate solution B.P. -

added to 250 ml of a lotion so that final concn of chlorhexidine is

(Chlorhexidine gluconate solution B.P. contains 50% w/v chlorhexidine gluconate)

lotion is 0.02%

Select one:

☒ 0.1mL

☐ 0.5mL

☐ 1.0mL

☐ 5.0mL

☐ 10.0mL

* chlorhexidine gluconate solution B.P. contains 50% w/v chlorhexidine gluconate

Question 5

Not changed since last attempt

Marked out of 1.00

Ferrous Sulfate Mixture APF contains 3% ferrous sulphate. If a patient is required to take 10ml three times a day, how much elemental iron are they ingesting on a daily basis?

($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$; MW = 278; Fe; AW = 55.8)

Select one:

☒ 180mg

☐ 18mg

☐ 1.8mg

☐ 0.18mg

☐ 90mg

5. $n = \frac{m}{M}$ $n = 3\%$ ferrous sulphate
 $= 3\text{g} / 100\text{ml}$ of ferrous sulphate
 $= 0.03\text{g} / \text{ml} \times 10\text{ml}$
 $= 0.03\text{g} \times \text{TDS}$
 $= 0.9\text{g}$ of ferrous sulphate
 $n = \frac{m}{M} = \frac{55.8}{278} = 0.20072$
 $0.9 \times 0.20072 = 0.18064\text{g}$
 $= 180\text{mg}$

1 = molar mass of a substance $\rightarrow$ with no + molecular
 m = mass of substance - the mass of an atom
 n = amount of a substance in mol

$$n = \frac{m}{M} = \frac{55.8}{278} = 0.20072$$

$$0.9 \times 0.20072 = 0.18064\text{g} = 180\text{mg}$$

$$4 - 0.002\text{g} / 100\text{ml} \\ 0.0002\text{g} / \text{ml} \times 250 \\ = 0.05\text{g required}$$

* chlorhexidine gluconate solution B.P. contains 50% w/v 50g / 100ml

$$\frac{0.05\text{g}}{0.5\text{g/ml}} = 0.1\text{ml}$$