Question 1

Not complete

Marked out of 1.00

A powdered mix was prepared according to the following working formula:

Digoxin	250 mg
Potassium chloride	1.5 g
Lactose	23.25g

What is the concentration of digoxin in the mixture?

Select one:

- 0.5%
- 0.2%
- 1%
- 1.8%
- 2.4%

Check

250 mg = 0.25 g

total = 25 g

Digoxin 0.25 g

digoxin Conc^n = 0.25 / 25 = 0.01 g in 1 g

= 1 g in 100 g

= 1%

Question 2

Not complete

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What volume of water should a sample of 500 mg of potassium permanganate be dissolved in such that if 10 ml of the solution is diluted to 1 litre with purified water, the final concentration of potassium permanganate is 1 in 5,000?

Select one:

- 60ml
- 50ml
- 25ml
- 100ml
- 75ml

Check

The final concentration = 1/5,000 = 0.0002 g/ml

∴ in 1 Litre = 0.2 g in 1000 mL

∴ in 10 ml before diluted to 1L it will be more concentrated

↳ 0.2 g in 10 mL

0.02 %

∴ the concentration of the initial we need is 0.02 g / mL

- sample of 500 mg KMnO$_4$ = 0.5 g KMnO$_4$ permanganate

- 0.5 g / 0.02 g/mL = 25 mL to dissolve in to get that concentration.

Question 3

Not complete

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Chlorhexidene Gluconate Solution B.P. contains 50% w/v chlorhexidene gluconate.

What volume of Chlorhexidene Gluconate Solution B.P. should be added to 200 mL of a lotion so that the final concentration of chlorhexidene gluconate in the lotion is 0.05% ?

Select one:

- 1ml
- 0.2ml
- 0.1ml
- 0.5ml
- 2ml

Check

50% → 0.05% ← 0%

0.05% = 0.05 parts of 50% w/v chlorhexidine gluconate

Total parts = 50

50 − 0.05 = 49.95 parts of lotion 0%

final volume / total = 49.95 / 50 × t = 200 ml

t = 200 / 49.95 = 200.2 ml

∴ 200.2 mL − 200 mL = 0.2 mL of 50% w/v chlorhexidine gluconate required

Or − ∴ 0.05/50 × 200.2 mL

Question 4
Not complete
Marked out of 1.00

If 400ml of an aqueous solution containing 35% ethanol is mixed w/ 200 ml of a solution containing 60% ethanol & 5% glycerin (the rest being water), & the mixture made to a final volume of 1L w/ water, what is the final concentration of ethanol.

Select one:
- 16%
- 28%
- 14%
- 22%
- 26%

Check

* 400 ml - 35% ethanol = 0.35g/ml × 400ml
= 140g in 400ml

* 200ml - 60% ethanol = 0.6g/ml × 200 ml
= 120g in 200ml

* total = 140g + 120g
= 260g in 1000 mL
= 0.26g/ml × 100
= 26% w/v

Question 5
Not complete
Marked out of 1.00

A solution for injection was made by dissolving 4.5 g of sodium chloride (NaCl, M.Wt. 58.5) and 840 mg of sodium hydrogen carbonate ($NaHCO_3$, M.Wt. 84.0) in water and making to a final volume of 500 ml. If 20 ml of the solution was injected, how much sodium would be administered?

The molecular weights are as follows NaCl, 58.5, $NaHCO_3$, 84.0 and Na^+, 23

Select one:
- 156mg
- 184mg
- 80mg
- 40mg
- 132mg

Check

- 4.5 g of sodium chloride :

$n = \frac{m}{M} = \frac{23}{58.5} = 0.393$ mol of Nat × 4.5 g = 1.77 g of Nat

- 840 mg of sodium hydrogen carbonate

$n = \frac{m}{M} = \frac{23}{84} = 0.2738$ mol of nat × 0.84g = 0.23g of Nat

- total Nat = 1.77g + 0.23 g = 2g

- final volume 500ml : 2g in 500mL
= 0.004g/mL concentration
∴ in 20 mL = 0.004g/mL × 20
= 0.08 g in 20mL
or
80 mg in 20 mL