

Question 1

Patients are returning tablets dispensed from a community pharmacy saying that the tablets break to small pieces when the blister packaging is opened. All complaints were regarding the same medicine from a single manufacturer. The pharmacist is suspecting that the product is a counterfeit medicine.

1.1 List **five (5)** characteristics of counterfeit medicines. **(10 marks)**

- Fraudulent labeling
- Fraudulent packaging
- Poor quality of medicines
- Contain different active ingredient
- Contain only inactive ingredients

(5 × 2 marks = 10 marks)

1.2 List **four (4)** actions you will take regarding this matter. **(10 marks)**

- Withhold selling this batch
- Keep in separate area in the pharmacy with label not to be sold
- Inform the supplier
- Inform the NMQAL
- Inform NMRA
- Inform FDI

(any 4 × 2.5 marks = 10 marks)

Question 2

Medicine X is available as a dosage form which contains 1.5 million units per mL. A patient requires a dose of 20,000 units per kilogram body weight. How many milliliters should be administered to a patient weighing 75 kg? (20 marks)

Method 01

$$\frac{20,000 \text{ units kg}^{-1} \times 75 \text{ kg}}{1.5 \times 10^6 \text{ units mL}^{-1}} = 1 \text{ mL} \quad (20 \text{ marks})$$

Method 02

$$\text{Number of units required for a } 75 \text{ kg patient} = \frac{20,000 \text{ units kg}^{-1} \times 75 \text{ kg}}{1.5 \times 10^6 \text{ units mL}^{-1}} \quad (10 \text{ marks})$$

$$\text{Volume required to be administered} = \frac{1.5 \times 10^6 \text{ units}}{1.5 \times 10^6 \text{ units mL}^{-1}} = 1 \text{ mL} \quad (10 \text{ marks})$$

Q# 3

$$\text{Strength of the dof} = 1.5 \times 10^6 \text{ units mL}^{-1} \quad 5$$

$$\# \text{ units required by the pt} = 20,000 \times 75 \text{ units} \quad 5$$

$$\begin{aligned} \text{ML to be administered} &= \frac{20,000 \times 75}{1.5 \times 10^6} \text{ mL} \quad 5 \\ &= 1 \text{ mL} \quad 5 \end{aligned}$$

Question 3

A patient is prescribed metformin 500 mg sustained-release tablets to be taken twice daily. He was previously getting metformin 500 mg immediate release, film coated tablets thrice daily.

3.1 List **four (4)** advantages of taking the sustained-release product. **(10 marks)**

- Less GI side-effects
- Reduce dose frequency
- Improve adherence
- Prolonged release of drug improves glycemic control

(4 × 2.5 marks = 10 marks)

3.2 List **five (5)** advice points regarding dosing and lifestyle modification when dispensing the new medicine for the first time **(10 marks)**

- Do not chew this medicine
- Take at same time
- Take with or just after meals
- Take 12 hour gaps
- Do not take alcohol
- Reduce intake of sugary food

(any 5 × 2 marks = 10 marks)

Question 4

A community pharmacy is dispensing medicines to patients based on prescriptions received through WhatsApp message service.

4.1 Explain the legality of this practice citing the relevant legal documents. **(10 marks)**

No (5 marks)

It is not legal as the NMRA Act nor the PODDO do not provide legal mandate to dispense medicines for soft copies of prescriptions **(5 marks)**

4.2 List **four (4)** violations of Good Dispensing Practices by the above practice. **(10 marks)**

- The same prescription can be dispensed several times/abuse of medicines
- The prescription cannot be checked with the patient
- Validation of the prescription cannot be done
- Confidentiality will be lost
- Correct verbal advice will not be provided **(any 4 × 2.5 marks = 10 marks)**

Question 5

5.1 List **three (3)** types of water used in the field of pharmacy and write **one (1)** use of each type. **(6 marks)**

Type of water	Use
• Potable water	clean glassware
• Distilled water	compound dosage forms
• Purified water	compound non-sterile dosage forms
• Water for injection	to compound sterile dosage forms

(any 3 × 2 marks = 6 marks)

5.2 List **four (4)** disadvantages of water as a pharmaceutical solvent. **(4 marks)**

- not all compounds are readily soluble
- high chance for microbial contamination
- react with some active ingredients making them inactive
- not readily volatile / Not easy to make vapour / need high energy to vaporize.
- Doesn't contain flavor
provide a

(any 4 × 1 marks = 4 marks)

5.3 Describe **two (2)** methods of overcoming the disadvantage of water as a pharmaceutical solvent. **(10 marks)**

- Add preservative :eg. add 5% chloroform ~~and~~ to improve preservative action
- Add cosolvent :eg. add alcohol to improve ~~the~~ solubility of Ⓢ insoluble in water
- Make emulsion :

When Ⓢ is insoluble in water
dissolve Ⓢ in oil phase ...

(any 2 × 5 marks = 10 marks)
2 marks for the method and 3 marks for the description in each answer)

1. List three types of water used in the field of agriculture and their uses.

2. Explain the importance of water quality in agriculture.

3. Describe the process of water infiltration in soil.

4. Discuss the factors that affect water infiltration.

5. Explain the role of water in plant growth.

6. Describe the process of transpiration in plants.

7. Explain the importance of water in soil chemistry.

8. Discuss the role of water in soil biology.

9. Explain the importance of water in soil structure.

10. Describe the process of waterlogging in soil.

11. Explain the role of water in soil erosion.

12. Discuss the importance of water in soil conservation.

13. Explain the role of water in soil fertility.

14. Describe the process of soil salinization.

15. Explain the importance of water in soil remediation.

16. Discuss the role of water in soil pollution.

17. Explain the importance of water in soil health.

18. Describe the process of soil acidification.

19. Explain the role of water in soil alkalization.

20. Discuss the importance of water in soil management.