UNIVERSITY OF JAFFNA, SRI LANKA BACHELOR OF PHARMACY

FOURTH YEAR FIRST SEMESTER EXAMINATION in BPharm Honour 20 CLINICAL PHARMACY - PHACP 4132

Date: 17.03.2023 Time: 02 hours

ANSWER ALL SIX QUESTIONS.

1			
	1.1.	Define the following terms.	
		1.1.1. Pharmaceutical care.	(15 Marks
		1.1.2. Therapeutic drug monitoring	(15 Marks
	1.2.	List five (05) core competencies of a clinical pharmacist.	(15 Marks
	1.3.	Compare and contrast medication reconciliation and medication review.	(25 Marks
	1.4.	Briefly explain the steps in systematic approach that should be adopted for	
		answering drug information enquiries.	(30 Marks
2.			
	2.1.	List the steps involved in the discharge process of a patient.	(25 Marks)
	2.2.	Briefly describe the five dimensions of medication adherence.	(25 Marks)
	2.3.	Briefly describe the different methods that can be used to detect medication	
		non-adherence among the patients.	(30 Marks)
	2.4	List five (05) strategies that can be used to improve medication adherence	
		during discharge.	(20 Marks)
3.			
	3.1.	3.1.1. Give five (05) sources of poisoning with an example for each.	(20 Marks)
		3.1.2. List the four (04) main steps involved in the management of poisoning.	(20 Marks)
	3.3.	List the classes of psychoactive substances with an example for each.	(15 marks)
	3.4.	Define the terms "Tolerance", "Dependence" and "Withdrawal", with regard	
		to substance abuse.	(15 Marks)
	3.5.	Briefly describe the role of clinical pharmacist in the prevention and treatment	
		of substance abuse.	(30 Marks)

4.1. Give three (03) applications of pharmacokinetic models.

(15 Marks

- 4.2. A single intravenous dose of 6 mg/kg of Gentamicin was administered to a 40-year-old male patient with a body weight of 60 kg and the initial plasma concentration of Gentamicin was estimated as 24 mg/L.
 - 4.2.1. Calculate the volume of distribution of Gentamicin in this patient.

(10 Marks)

4.2.2. Serum creatinine level in this patient is 120 mmol/L.

Estimate the creatinine clearance (CrCL) in this patient.

(Creatinine clearance (mL/min) = $\frac{F \times (140\text{-Age in Years}) \times \text{Weight (in kg)}}{\text{Plasma creatinine (mmol/L)}}$

where F=1.04 in females and 1.23 in males).

(10 Marks)

4.2.2. Calculate the elimination half-life for Gentamicin in this patient. (Assume that the elimination of Gentamicin follows first-order kinetics and Gentamicin clearance is approximately equal to CrCL).

(25 Marks)

4.3 Mrs. SJ is a 40-year-old asthmatic patient (60 kg) who has been admitted to the hospital and treated with oral Theophylline 500 mg, twice daily. Unfortunately, after two days of treatment, two doses of Theophylline were missed. The clinical team has decided to give Mrs. SJ a loading dose of intravenous Aminophylline before restarting the maintenance therapy. The optimum Theophylline concentration for the treatment of asthma is 15 mg/L. Steady state concentration has been already reached in Mrs. SJ and the Theophylline level in Mrs. SJ was reported as 4.16 mg/L.

Calculate the recommended loading dose of intravenous Aminophylline for Mrs. SJ.

(Theophylline has an average volume of distribution of 0.48~L/kg based on population data).

(40 Marks)

5.

5.1. Briefly explain the term "prescribing cascade" with an example.

(15 Marks)

5.2. List the four (04) main factors that should be considered in causality assessment of adverse drug reactions.

(20 Marks)

5.3. Mr. GB, a 59-year-old man with a past history of hypertension, has been hospitalized due to pain in the right shoulder and urinary tract infection. His medication list is given below.

Furósemide 25 mg Daily

Ramipril 5 mg Daily Carvedilol 12.5 mg Daily Ketoprofen 160 mg Daily Ciprofloxacin 250 mg BD



- 5.3.1. Review Mr. GB's medications and state the reason why each of this medication has been prescribed. (15 Marks)
- 5.3.2. Identify any potential drug interaction(s) and briefly describe the mechanism(s) for each interaction. (25 Marks)
- 5.3.3. Mention any recommendations to avoid the drug interaction(s) mentioned in 5.3.2 in this patient. (25 Marks)
- 6. Ms. TM is a 7-year-old girl who has been brought to the emergency department by her mother due to vomiting, abdominal pain and confusion. Her mother reports that Ms.TM has lost her weight and has been increasingly tired over the last few weeks. Past Medical History:
 - Flu and chest infection (a month ago)

Presenting complaints:

 Abdominal pain, Vomiting, Dehydration, Polydipsia, Polyuria, Rapid heavy breathing and fruity breath

Laboratory Findings:

- Heart rate 180 beats/min
- Blood pressure 100/60 mm Hg
- Random Blood Sugar 22 mmol/L
- Serum Potassium levels 5 mmol/L
- Urine analysis Positive for ketone and glucose
- 6.1. What condition does Ms. TM's signs and symptoms suggest? (05 Marks)
- 6.2. List the four (04) main symptoms that are characteristic to the condition mentioned in 6.1. (20 Marks)
- 6.3. Briefly explain the mechanism involved in the development of the condition mentioned in 6.1 in this patient. (25 Marks)
- 6.4. Briefly describe the management of the condition mentioned in 6.1. (30 Marks)
- 6.5. List five (05) challenges in providing pharmaceutical care for paediatric patients. (20 Marks)