



UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE
ALLIED HEALTH SCIENCES DEGREE PROGRAMME
FOURTH BPHARM PART II EXAMINATION – JULY 2016
PH 4212 CLINICAL PHARMACY (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- Answer **all** questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1.

1.1. Pharmacokinetics (PK) is the quantitative study and characterization of the time course of a drug absorption, distribution, metabolism and excretion. Answer following questions using your knowledge in PK.

- 1.1.1. List five (05) applications of PK principles in the biomedical field. **(10 marks)**
- 1.1.2. Explain the relationship between dissociation constant (pKa) of a drug and its absorption in the gastrointestinal tract. **(25 marks)**
- 1.1.3. Describe the theorem that relates the rate of drug diffusion across the cell membrane using the equation derived out of the theory. **(25 marks)**

1.2. Write short notes on,

- 1.2.1. Enteral nutrition support. **(20 marks)**
- 1.2.2. Reference value in laboratory results. **(20 marks)**

2. A 50 kg women was given a single IV boules of an antibacterial drug at a dose level of 6 mg/kg. Plasma blood concentrations determined by taking blood samples at regular intervals are shown in the table below. Answer the questions assuming a one compartment model.

Time (hours)	Plasma drug concentration (mg/mL)
0.25	8.21
0.50	7.87
1.00	7.23
3.00	5.15
6.00	3.09
12.00	1.11
18.00	0.40

- 2.1. Plot the time vs. plasma concentration graph in a semi-log paper. **(20 marks)**
- 2.2. State the order of this process. **(5 marks)**

- 2.3. Calculate the elimination rate constant (k_{el}), elimination half-life ($t_{1/2}$) and volume of distribution (V_d). (30 marks)
- 2.4. State the duration of action of the antibacterial agent, considering that it is not effective at a plasma concentration less than 2 mg/mL. (15 marks)
- 2.5. State the time taken for 99.9% of the antibacterial agent to be eliminated. (15 marks)
- 2.6. State the duration of activity if the dose of the antibacterial agent is doubled. (15 marks)

3.

3.1. Read the following case and answer the questions below.

Miss. SH is 16 years old and weights 40 kg.

Presenting complaint (PC): She was admitted to the hospital 5 days ago with an asthma attack.

History of presenting complaint (HoPC): Prior to admission she had 3 days of possible upper respiratory tract infection (URTI) symptoms (runny nose, cough, a bit of slightly yellow sputum, sore throat, and myalgia)

Past medical history (PMH): She has had asthma since she was 8 years.

Medicines History: Her usual medications prior to admission was:

Salbutamol inhaler 200 micrograms (puffs) prn

Fluticasone accuhaler 250 mg (1 puff) bd

Theophylline 200 mg PO bd

Allergies: aspirin

The following medications have been added in hospital:

Prednisolone 25 mg PO bd

Amoxicilline-clavulanic acid 250/125 mg PO tds

Metoclopramide 5 mg PO prn (up to tds)

3.1.1. Define following Latin abbreviations that appeared in this case.

3.1.1.1. prn:

3.1.1.2. bd:

3.1.1.3. PO:

3.1.1.4. tds:

(10 marks)

3.1.2. State three (03) possible reason for Miss SH's asthma attack

(10 marks)

3.1.3. List two (02) important laboratory investigations/ results that needs to be checked for in her medical notes.

(10 marks)

3.1.4. State the most appropriate management you would suggest for her at the admission with severe asthma attack.

(10 marks)

3.1.5. Comment on the use of metoclopramide in this patient.

(10 marks)

3.1.6. List two (02) counselling points you would give to this patient.

(10 marks)

3.2. List eight (08) counselling points to be given to a patient taking warfarin for the first time.

(40 marks)

4.

4.1. You are a pharmacist in a drug information centre. A patient wants to enquire about following information from you. Briefly explain your answers.

4.1.1. The suitability of using warfarin to treat deep vein thrombosis (DVT) during the first trimester of pregnancy *(15 marks)*

4.1.2. The safety of administration of yellow fever vaccine to a patient with a one year history of nephrotic syndrome and taking cyclosporine and prednisolone. *(20 marks)*

4.2. Briefly explain the role of a pharmacist in geriatric medicine use. *(15 marks)*

4.3. Briefly explain four (04) factors affecting the rate and extent of oral absorption. *(20 marks)*

4.4. Briefly explain five (05) factors which affect the transportation of medicines from mother to foetus during lactation. *(30 marks)*

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