# Faculty of Medicine, University of Ruhuna

## Third Examination for Medical Degrees (Part II) February 2021

## Pharmacology Paper I

## Thursday 11th February 2021

**Answer all 05 questions** **(9.00 a.m. - 11.30 a.m.) 2 ½ hours**

**Answer each question in a separate book**

**1.**

1.1. Write **four (04)** groups of antihypertensive drugs with an example to each **(20 marks)**

1.2. Name suitable antihypertensive drug/s for the following clinical situations

1.2.1. A 60 year-old male with diabetes found to have blood pressure of 160/95 mmHg **(10 marks)**

1.2.2. A 35 year-old pregnant mother at 36 weeks of gestation with blood pressure of 200/110 mmHg. On examination she has tender liver with bilateral crepitation over lung fields. Her urine is positive for protein **(10 marks)**

1.3.

1.3.1. Briefly explain the reason/s of your selection in 1.2.1 **(40 marks)**

1.3.2. Briefly explain the reason/s of your selection in 1.2.2 **(20 marks)**

**2.**

2.1. Write **two (02)** examples for each of the following

2.1.1. Tricyclic antidepressants

2.1.2. Selective serotonin reuptake inhibitors (SSRI) **(10 marks)**

2.2. Compare the differences between tricyclic antidepressants and SSRI in relation to mechanism of action, adverse effects and indications **(30 marks)**

2.3. Write **two (02)** other groups of antidepressants with an example to each **(10 marks)**

2.4.

2.4.1. List **three (03)** routes of administration of corticosteroids for a patient with bronchial asthma with an example to each route **(20 marks)**

2.4.2. What is the route you would select to administer corticosteroids for long term control of asthma? **(05 marks)**

2.4.3. Describe the advantages of selecting the route you have mentioned in 2.4.2 **(25 marks)**

**3.**

3.1. List **four (04)** pharmacokinetic processes **(10 marks)**

3.2. Explain the term volume of distribution **(30 marks)**

3.3. List **three (03)** factors that influence drug metabolism and outline the mechanism **(20 marks)**

3.4. Explain the term plasma half-life and describe its clinical significance **(40 marks)**

**4.**

4.1. Write **five (05)** oral antidiabetic drug groups with an example to each group **(25 marks)**

4.2. A 42 year-old male was found to have fasting blood sugar of 264 mg/dL at a routine checkup. His blood pressure was 110/70 mmHg and his body mass index was 22 $kg/m^2$.

4.2.1. What is the drug you would prescribe to manage hyperglycaemia in this patient? **(05 marks)**

4.2.2. Describe the mechanism of action of the drug you mentioned in 4.2.1 **(25 marks)**

4.2.3. List **two (02)** adverse effects of the drug you mentioned in 4.2.1 **(10 marks)**

4.2.4. Write **two (02)** other clinical indications of the drug you mentioned in 4.2.1 **(10 marks)**

4.3. Write **five (05)** indications of insulin therapy **(25 marks)**

**5.** A 55 year-old heavy smoker complained of acute retrosternal chest pain for 2 hours. He was brought to Emergency Treatment Unit.
His electrocardiogram (ECG) showed ST elevation myocardial infarction.
He was given loading doses of dual antiplatelets and atorvastatin.

5.1. Name **two (02)** antiplatelet drugs which can be given as dual therapy **(10 marks)**

5.2. Write the mechanism of action of the drugs you mentioned in 5.1 **(30 marks)**

5.3. Explain the pharmacokinetic basis of administering a loading dose **(15 marks)**

5.4. Even though primary Percutaneous Coronary Intervention (PCI) is indicated, transfer of patient to a PCI centre takes more than 2 hours. Medical team decides to treat him with pharmacological management.

5.4.1. What is the definitive pharmacological management for this patient?
**(10 marks)**

5.4.2. Describe the pharmacological basis of the treatment mentioned in 5.4.1
**(25 marks)**

5.4.3. List **four (04)** contraindications to the above treatment mentioned in 5.4.1
**(10 marks)**