



Faculty of Medicine, University of Ruhuna

Third Examination for Medical Degrees (Part II) September 2020

Pharmacology Paper I

Thursday 10th September 2020

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.

1.1.1. Write four (04) indications of parenteral nutrition **(20 marks)**

1.1.2. List five (05) complications of parenteral nutrition **(20 marks)**

1.1.3. Describe how you would prepare multi chamber bags of parenteral nutrition before administering **(10 marks)**

1.2.

1.2.1. Compare first order kinetics and zero order kinetics **(30 marks)**

1.2.2. Explain the usefulness of a dose-response curve **(20 marks)**

2.

2.1. Name two (02) different types of rapid acting insulins **(10 marks)**

2.2. Mention main pharmacokinetic differences between rapid acting insulin and short acting insulin **(20 marks)**

2.3. State two (02) medical emergencies where short acting insulins are used and describe how you administer short acting insulin in each situation **(40 marks)**

2.4. List three (03) adverse effects of long-term insulin injections **(10 marks)**

2.5. Briefly describe how you would avoid adverse effects mentioned in 2.4 **(20 marks)**

3. A 60 year-old man presents to the Emergency Treatment Unit with progressive shortness of breath. He has a history of uncontrolled hypertension, myocardial infarction and diabetes mellitus. His blood pressure, heart rate and respiratory rate are 75/40 mmHg, 100 beats/minute and 30 breaths/minute respectively. He has elevated jugular venous pressure. His ECG shows sinus tachycardia, and echo cardiogram reveals impaired systolic function, with an ejection fraction of 20%.

3.1. What is the diagnosis? (05 marks)

3.2. List four (04) groups of drugs which are used in the acute management of this patient with an example to each group (40 marks)

3.3. What is the drug group which would relieve the congestion? (10 marks)

3.4. Write the pharmacological basis of using the drug group stated in 3.3 in the acute condition of this patient (30 marks)

3.5. Write two (02) other drugs from different drug groups which are used in the long term management of the above condition stated in 3.1. (15 marks)

4.

4.1. Write five (05) different drug groups used to treat Parkinson's disease with an example for each (15 marks)

4.2. Describe the mechanism of action of one of the drugs you mentioned in 4.1 (40 marks)

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

4.3.1. Classical antipsychotics

4.3.2. Atypical antipsychotics (10 marks)

4.4. Compare the differences between classical and atypical antipsychotics in relation to mechanism of action, adverse effects and indications (35 marks)

5.

- 5.1. List four (04) first line anti-hypertensive medications from different groups **(10 marks)**
- 5.2. Briefly describe the mechanism of action of all four medications mentioned in 5.1 **(20 marks)**
- 5.3. List two (02) main contraindications (other than hypotension) for each of the four medications mentioned in 5.1 **(20 marks)**
- 5.4. Name one (01) compelling indication to start each of the following medications in a patient with hypertension **(20 marks)**
- 5.4.1. Prazosin
 - 5.4.2. Carvedilol
 - 5.4.3. Enalapril
 - 5.4.4. Labetalol
- 5.5. Discuss briefly the pharmacological management of high blood pressure in the following clinical situations
- 5.5.1. A 73 year-old man with ischemic stroke awaiting thrombolysis. His blood pressure is 220/110 mmHg **(10 marks)**
 - 5.5.2. A 34 year-old pregnant woman in 38 week of gestation presented with headache and vomiting. Her blood pressure is 180/110 mmHg **(10 marks)**
 - 5.5.3. A 56 year-old previously healthy male presented with vertigo for one day. His blood pressure is 180/100 mmHg **(10 marks)**