



FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA
SECOND EXAMINATION FOR MEDICAL DEGREES – APRIL 2019
PHYSIOLOGY PAPER II

THREE HOURS

Answer all FIVE questions

Answer EACH QUESTION in a SEPARATE BOOK

Use diagrams where necessary

1

- 1.1** Describe the mechanics of inspiration. (30 marks)
- 1.2** Explain the physiological basis for the following phenomena
- 1.2.1** Heart rate is faster during inspiration than in expiration. (30 marks)
- 1.2.2** The gap between the two components of the second heart sound is wider during inspiration than in expiration. (40 marks)

2.

- 2.1** Describe the mechanism of osmotic diuresis using glucose as an example. (40 marks)
- 2.2** Describe the effects of osmotic diuresis on Na^+ , K^+ and water balance of the body. (25 marks)
- 2.3** Describe how a temporary platelet plug is formed after tissue injury. (35 marks)

3.

- 3.1** Define puberty. (15 marks)
- 3.2** List two hormones which determine the onset of puberty. (10 marks)
- 3.3** Explain the role of hypothalamus and pituitary in the regulation of menstrual cycle. (35 marks)
- 3.4** Describe the physiological changes that occur during menopause. (40 marks)

4.

4.1 Describe the physiological effects of chronic liver disease.

(60 marks)

4.2 Describe the role of skin in thermoregulation.

(40marks)

5.

5.1 Describe the stretch reflex.

(40 marks)

5.2 When a doctor attempts to straighten the elbow joint of an individual who was voluntarily keeping it at a flexed position, the doctor felt an initial resistance but with the exertion of a higher force, resistance disappeared suddenly and the joint became extended. Explain the physiological mechanism that led to the disappearance of the resistance.

(30 marks)

5.3 Explain why some modalities of sensations are lost while others are preserved in syringomyelia.

(30 marks)