

UNIVERSITY OF RUHUNA



FACULTY OF MEDICINE

SECOND EXAMINATION FOR MEDICAL DEGREE

PHYSIOLOGY II

June 2002

TIME: THREE HOURS

Answer all five questions

Answer each part in a separate answer book

Part A

- 1.0 A 30-year old man was admitted to hospital with a history of watery diarrhoea of one day's duration. He also has (a) thirst, (b) postural hypotension and (c) reduced urine output.
- 1.1 Explain the physiological basis for the presence of (a), (b) and (c). (60 marks)
- 1.2 List two possible modes of fluid replacement. Give two examples for each mode. (10 marks)
- 1.3 State the advantages and disadvantages of each example you have listed in 1.2. (30 marks)
- 2.0 Explain why
 - 2.1 Trained athletes have a higher stroke volume at rest compared with an average individual. (30 marks)
 - 2.2 The diastolic blood pressure decreases during exercise involving isotonic muscle contraction. (35 marks)
 - 2.3 The increase in respiration caused by muscular exercise continues for a few minutes after the cessation of exercise. (35 marks)
- 3.0 List the hormones that regulate the menstrual cycle in an adult female. (20 marks)
- 3.1 Describe the hormonal control and maturation of an ovum during a menstrual cycle in a fertile female. (80 marks)

Part B

- 4.0 Describe the mechanisms by which the kidney conserves body water. (50 marks)
- 4.1 Give a physiological explanation for the following statement: (50 marks)
- 4.2 "The hypothalamus is the physiological junction between the external and internal environments."
- 5.0 Write short notes on
 - 5.1 the ionic basis of a cardiac muscle action potential. (25 marks)
 - 5.2 the physiological basis of deep tendon reflexes. (25 marks)
 - 5.3 the physiological functions of pancreatic juice. (25 marks)
 - 5.4 posterior pituitary hormones. (25 marks)