



SECOND EXAMINATION FOR MEDICAL DEGREES

PHYSIOLOGY II

DECEMBER 2004

TIME: THREE HOURS

*Answer all five questions**Answer part A and B in separate answer books*

Part A

1.0 Give physiological explanations for the following.

- 1.1 Blood pressure is maintained within normal limits after losing about 400 ml of blood. (25 marks)
- 1.2 Cannon waves are seen in complete heart block. (25 marks)
- 1.3 Astronauts do not sit upright when they blast off from earth. (25 marks)
- 1.4 Patients with left ventricular failure develop orthopnea. (25 marks)

2.0

- 2.1 Define hypoxia. (10 marks)
- 2.2 List the different types of hypoxia and describe them, giving examples. (40 marks)
- 2.3 Describe briefly the role of chemoreceptors in regulation of respiration. (50 marks)

3.0 Describe the:

- 3.1 functions of hydrogen ions secreted by the stomach. (20 marks)
- 3.2 regulation of hydrogen ion secretion. (40 marks)
- 3.3 factors that affect gastric emptying. (40 marks)

Part B

4.0

- 4.1 List the three main processes that occur in a nephron. (10 marks)
- 4.2 Describe, giving examples, how the processes listed in 4.1 affect the renal clearance of different substances. (40 marks)
- 4.3 Describe the role of the distal tubules and collecting ducts in the conservation of body water. (50 marks)

5. Write short notes on

- 5.1 macrophages. (25 marks)
- 5.2 functions of plasma proteins. (25 marks)
- 5.3 photoreceptors. (25 marks)
- 5.4 calcitonin. (25 marks)