UNIVERSITY OF RUHUNA FACULTY OF MEDICINE

SECOND EXAMINATION FOR MEDICAL DEGREES

PHYSIOLOGY II

MARCH 2007 TIME: THREE HOURS

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

Part A

1. A 31 year-old man was admitted to hospital after a road traffic accident. On admission, PCV was 45% and haemoglobin concentration was 14.0 g/dL. After the initial treatment with intravenous fluids, PCV was 35% and haemoglobin was 9.0 g/dL.

1.1 List names of four intravenous fluids that can be used on this patient. (20 marks)
1.2 Describe advantages and disadvantages of each fluid stated in 1.1, in its use in the above situation. (40 marks)
1.3 Explain the physiological basis for changes in haemoglobin and PCV. (40 marks)

2. Describe the following using clearly labelled diagrams.

2.1 Different phases of an action potential of a cardiac muscle fibre. (30 marks)
2.2 Isovolumetric contraction phase of the left ventricle. (30 marks)
2.3 Fetal circulation. (40 marks)

3. Explain

3.1 how negative intrapleural pressure is generated. (40 marks)
3.2 why high concentration O_2 treatment is not used in type II respiratory failure. (30 marks)
3.3 why polycythaemia is seen in people living in high altitudes. (30 marks)

Part B

4.

4.1 Name three hormones secreted by the kidney. (15 marks)
4.2 Describe the regulation of secretion of two of the hormones stated above. (40 marks)
4.3 Describe briefly the actions of one of the hormones stated in 4.1. (45 marks)

5. Write short notes on

5.1 features of cerebellar dysfunction. (25 marks)
5.2 the proximal convoluted tubule. (25 marks)
5.3 physiology of lactation. (25 marks)
5.4 types of jaundice. (25 marks)