UNIVERSITY OF JAFFNA, SRI LANKA
FIRST EXAMINATION FOR MEDICAL DEGREES –May 2012
Physiology Paper II

Date: 03.05.2012 Time: 03 hours

ANSWER ALL THE **TEN** QUESTIONS
Answer each **PART** in separate answer books

Part A

1. Mrs. Masilamany, 40 year old lady, came to the hospital with the complaint of tiredness which was gradually increasing over the last few months. She was having excessive menstrual bleeding. Her blood pressure was 130/60 mmHg and Investigation of blood were:
   Hb%- 7.6 g/dl
   MCHC- 22%
   MCV- 71 μ^3
   1.1. Comment on the blood parameters given and name the type of anaemia. (30 Marks)
   1.2. Explain the Physiological basis of the anaemia in this patient. (30 Marks)
   1.3. Explain the physiological basis of the blood pressure in this patient. (40 Marks)

2. Explain the physiological basis of the following:
   2.1. The wrist watch becomes loose on entering an air-conditioned room set at 18° C. (30 Marks)
   2.2. Sweating increases in cloudy (humid) environment (30 Marks)
   2.4. Babies born at full term tolerate cold better than preterm babies (40 Marks)

3. Mr. Mahendran, 50 year old clerk came to the hospital with a history of pain in the medial aspect of left arm, tightening in nature, occurring every time he climbs stairs and disappearing on resting.
   3.1. Name the pain (10 Marks)
   3.2. Explain the physiological basis of the pain in this patient. (40 Marks)
   3.3. Describe briefly the measures he should have taken to avoid this condition with reasons (50 Marks)

4. Describe the following:
   4.1. Deglutition. (30 Marks)
   4.2. Intestinal motility (40 Marks)
   4.3. Defecation. (30 Marks)

5. Explain the physiological basis of,
   5.1. Tone of the muscles (30 Marks)
   5.2. Profuse sweating in patients with myocardial infarction (30 Marks)
   5.3. Small objects disappearing when trying to fix the gaze on them in dim light. (40 Marks)

Part B

6. Write short notes on:
   - 6.1. Ejection of milk (30 Marks)
   - 6.2. Prolactin (35 Marks)
   - 6.3. Early pregnancy test (35 Marks)

7. An experiment was conducted to study the effect of exercise on pulmonary ventilation in a research laboratory.
   - 7.1. Define 'pulmonary ventilation' (20 Marks)
   - 7.2. List the factors that determine pulmonary ventilation (20 Marks)
   - 7.3. Briefly explain the mechanisms which contribute to the increase in pulmonary ventilation during exercise (40 Marks)
   - 7.4. List the instruments you need to study the effect of exercise on pulmonary ventilation (20 Marks)

8.
   - 8.1. Name two neurotransmitters (20 Marks)
   - 8.2. Name the neurons that produce the transmitters mentioned in 8.1. (20 Marks)
   - 8.3. List the receptors that react with the transmitters mentioned in 8.1. (30 Marks)
   - 8.4. Write the action of the transmitters mentioned in 8.1 on heart. (20 Marks)

9.
   - 9.1. Write the renal blood flow of a resting person (20 Marks)
   - 9.2. Write two physiological mechanisms which regulate renal blood flow (40 Marks)
   - 9.3. A person who works in a very hot environment passes less urine compared to a resting person. Explain the physiological basis of this phenomenon (35 Marks)

10. Write notes on,
   - 10.1. Diabetes Mellitus (35 Marks)
   - 10.2. Dwarfism (30 Marks)
   - 10.3. Calcium tetani (35 Marks)