

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**FIRST EXAMINATION FOR MEDICAL DEGREES –January 2011**  
**Physiology: Paper II**

**Date: 07.01.2011.**

**Time: 03 hours**

**Answer all the ten questions**

**Write the answers for EACH PART in separate answer book**

**PART A**

1. 1.1. Describe the forces that determine the pleural pressure. (40 marks)
- 1.2. Briefly describe the respiratory problems of tension pneumothorax (30 marks)
- 1.3. Briefly describe the cardiovascular problems of tension pneumothorax (30 marks)
  
2. 2.1. Describe the pressure changes in the left ventricle during normal cardiac cycle (50 marks)
- 2.2. Describe the effect of changing posture from lying on bed to standing on filling of the left ventricle (25 marks)
- 2.3. Describe the effect of changing posture from lying on bed to standing on filling of the right ventricle (25 marks)
  
3. Explain the physiological basis of the following
- 3.1. Patients with hyperthyroidism have increased pulse pressure (50 marks)
- 3.2. Patients with diabetes mellitus lose weight (50 marks)
  
4. 4.1. Describe the factors that affect spermatogenesis. (35 marks)
- 4.2. Describe the changes in the female body after ovulation that can be used to confirm ovulation. (35 marks)
- 4.3. Describe the physiological mechanism that causes the stoppage of menstruation after fertilization. (30 marks)
  
5. 5.1. Describe the stretch reflex and its clinical significance (30 marks)
- 5.2. Briefly describe the distribution of receptors in retina and the significance of the distribution (30 marks)
- 5.3. Briefly describe the stages of sleep (25 marks)
- 5.4. List the features of rage (15 marks)

## **PART B**

6. 6.1. Write the volume of total body water of a standard man in liters (10 marks)
- 6.2. Briefly describe a method by which you may determine total body water (50 marks)
- 6.3. Briefly describe three physiological mechanisms by which body water content is restored after loss of body water. (40 marks)
  
7. Write short notes on,
  - 7.1. Lymphocytes (35 marks)
  - 7.2. Platelets (30 marks)
  - 7.3. Anti clotting mechanisms in the body (35 marks)
  
8. 8.1. Define “resting membrane potential” of a neuron (20 marks)
- 8.2. Briefly describe the mechanisms involved in genesis of resting membrane potential (50 marks)
- 8.3. Briefly explain, “Excitatory Post Synaptic Potential” (30 marks)
  
9. Write short notes on,
  - 9.1. Effects of obstruction of bile duct (30 marks)
  - 9.2. Vomiting (35 marks)
  - 9.3. Regulation of body temperature (35 marks)
  
10. 10.1. Define Glomerular Filtration Rate (GFR) (20 marks)
- 10.2. List the factors that affect GFR and briefly describe how they affect the GFR. (30 marks)
- 10.3. Briefly describe a laboratory method to determine GFR (50 marks)

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