UNIVERSITY OF JAFFNA, SRI LANKA
FIRST EXAMINATION FOR MEDICAL DEGREES –March 2011

Physiology: Paper II

Date: 30.03.2011. **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 changes in pleural pressure during:
   - 1.1.1. Quite breathing. (25 marks)
   - 1.1.2. Severe physical exercise. (25 marks)

   1.2. Describe physiological basis of increased rate of respiration in bronchial asthma. (50 marks)

2. 2.1. Describe the pressure changes in the left atrium during normal cardiac cycle (50 marks)

   2.2. Explain the reason for the difficulty in breathing on lying down in patients with left ventricular failure. (25 marks)

   2.3. Define Angina Pectoris and explain its physiological basis (25 marks)

3. Explain the physiological basis of the following

   3.1. Patients with hypothyroidism are unable to tolerate cold (35 marks)

   3.2. Females with hypopituitarism do not attain menarche (30 marks)

   3.3. Patients with hypoparathyroidism show tetany (35 marks)

4. 4.1. Describe ovulation. (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 withdrawal reflex and its significance (30 marks)

   5.2. Briefly describe the organ of Corti (30 marks)

   5.3. Briefly describe the problems of sleep deprivation (25 marks)

   5.4. List the functions of Hypothalamus (15 marks)

PART B

6. 6.1. Define interstitial fluid (15 marks)
   6.2. Give the concentrations of Na^+, H^+, and HCO_3^- in the interstitial fluid. (15 marks)
   6.3. Write the forces that determine the formation of interstitial fluid (20 marks)
   6.4. Briefly describe the effect of liver failure on formation of interstitial fluid. (50 marks)

7. 7.1. Draw and label the phases of action potential in a nerve. (30 marks)
   7.2. Briefly describe the ionic changes that occur in the initial phase of 7.1. (20 marks)
   7.3. Briefly describe saltatory conduction of nerve impulse (35 marks)
   7.4. List three factors that inhibit transmission of impulse in a nerve (15 marks)

8. Write short notes on,
   8.1. Clotting time (35 marks)
   8.2. B Lymphocytes (30 marks)
   8.3. Erythropoisis in high altitude (35 marks)

9. 9.1. Define Basal Metabolic Rate. (15 marks)
   9.2. Briefly describe a laboratory method to determine BMR (60 marks)
   9.3. List the factors that affect BMR (25 marks)

10. Write short notes on,
   10.1. Poly urea (35 marks)
   10.2. Obstructive jaundice (30 marks)
   10.3. HCl secretion in Stomach (35 marks)

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