UNIVERSITY OF JAFFNA, SRI LANKA
FIRST EXAMINATION FOR MEDICAL DEGREES –August- 2014
Physiology: Paper II

Date: 13.08.2014 Time: 03 hours

ANSWER ALL THE **TEN** QUESTIONS

1. Describe the sequence of events of bringing the normalcy after infusion of the following fluids to normal person
   1.1. One (1) liter of 5% glucose solution (50 Marks)
   1.2. One (1) liter of 0.9 % sodium chloride solution (50 Marks)

2. Describe the precautions to be taken in the following instances with reasons.
   2.1. Collection of blood for transfusion from a **donor** (40 Marks)
   2.2. Transfusion of blood to a **patient** (60 Marks)

3. Describe the physiological basis of the following:
   3.1. Starting position for 100 meter race (30 Marks)
   3.2. Cardiac muscle cannot be tetanized (30 Marks)
   3.3. Eye surgeons use atropine eye drops before ophthalmoscopy (40 Marks)

4. Describe the physiological basis of the following:
   4.1. Children of smokers suffer from respiratory tract infections frequently (50 Marks)
   4.2. Patients with left ventricular failure become breathless on lying flat on the bed (50 Marks)

5. Write notes on,
   5.1. Pace maker of the heart (50 Marks)
   5.2. Jugular venous pulse (50 Marks)

6. Mr. S. Asokan, 45 year old manger of a private company was admitted to the hospital with the complaint of tightening pain in the chest which radiated to the left arm and breathlessness of about one hour duration. On examination patient was dyspnoeic and sweating, pulse rate was 105 per minute and the blood pressure was 100/90mmHg. Auscultation revealed fine crepitation at the base of the lungs. ECG showed ST elevation in leads V1 – V4¬ (anterior leads) and echocardiogram showed that the left ventricular ejection fraction as 35%. Coronary angiogram showed obstruction in the anterior descending coronary artery.
   Describe the physiological basis of the following in the patient:
   6.1. Chest pain radiating to left arm (30 Marks)
   6.2. Left ventricular ejection fraction- 35%. (30 Marks)
   6.3. Pulse rate- 105 per minute (40 Marks)

7. A 30 year old lady came to hospital with the complaint of loss of weight in spite of excessive hunger and eating more. She complained the hospital atmosphere as very hot and sweating excessively whereas all others felt comfortable with the environmental temperature.
On examination, she had a diffuse enlargement in the neck, weight 40 kg, height- 165 cm, pulse rate- 100/min. Her hands were warm and moist. Her free thyroid hormones were elevated and the TSH level was reduced.
Explain the Physiological basis of the following observations in this patient:

7.1. Increased hunger (20 Marks)
7.2. Loss of weight (20 Marks)
7.3. Warm hands (20 Marks)
7.4. Excessive sweating (20 Marks)
7.5. Increased heart rate (20 Marks)

8. Write notes on the following

8.1. Saliva (50 Marks)
8.2. Intestinal motility (50 Marks)

9. A 10 year old child was brought to the hospital with a complaint of small scrotum. On examination it was empty.

9.1. Name the hormone responsible for the descent and describe the regulation of secretion of this hormone at the time of the descent. (40 Marks)
9.2. State the physiological need for the presence of the testis in the scrotum and explain the physiological mechanisms involved in achieving this need. (60 Marks)

10. Briefly explain the physiological basis of the following:

10.1. Adequate sleep is necessary for efficient learning (25 Marks)
10.2. Skeletal muscle contracts when stretched but relaxes when stretched by excessive force. (25 Marks)
10.3. People with lesions in the dorsal columns tend to fall when they close their eyes (25 Marks)
10.4. Dogs can hear sounds that the humans cannot hear (25 Marks)