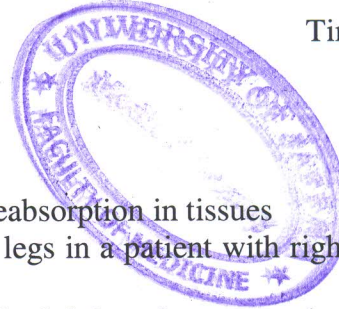


**UNIVERSITY OF JAFFNA, SRI LANKA**  
**FIRST EXAMINATION FOR MEDICAL DEGREES –July- 2016**  
**Physiology: Paper II**

Date: 13.07.2016

Time: 03 hours

ANSWER ALL THE TEN QUESTIONS



1. Regarding tissue fluids:
  - 1.1. Describe tissue fluid formation and reabsorption in tissues (40 Marks)
  - 1.2. Explain the formation of Oedema in legs in a patient with right heart failure (30 Marks)
  - 1.3. Explain the formation of oedema in the left leg after removal of left inguinal lymph nodes for therapeutic purposes. (30 Marks)
  
2. Describe the physiological basis of the following:
  - 2.1. Reticulocyte count is a good indicator of a patient with anaemia responding to treatment. (50 Marks)
  - 2.2. When determining blood groups, ABO groups respond quickly but the response of Rh group is delayed (25 Marks)
  - 2.3. ESR is increased in infections (25 Marks)
  
3. Explain the physiological basis of the changes in respiration in the following situations:
  - 3.1. A person breathing through a single long tube (30 Marks)
  - 3.2. A person hyperventilating voluntarily for 2 minutes (30 Marks)
  - 3.3. A person with left ventricular failure, lying flat on a bed (40 Marks)
  
4. Explain the following:
  - 4.1. Cardio-vascular responses to increasing the intra-thoracic pressure after maximal inspiration, holding it (straining) for about 1 minute and then releasing the pressure. (50 Marks)
  - 4.2. Reduced blood flow to GIT during heavy exercise (50 Marks)
  
5. Describe the physiological basis of the following:
  - 5.1. Increased pigmentation in patients with adrenal insufficiency. (25 Marks)
  - 5.2. Lipolysis in insulin deficiency (25 Marks)
  - 5.3. Increased heart rate in hyperthyroidism (25 Marks)
  - 5.4. Tetany in hypo-parathyroidism (25 Marks)
  
6. Describe the regulation of:
  - 6.1. Acid secretion in stomach (50 Marks)
  - 6.2. Bicarbonate secretion in pancreas (25 Marks)
  - 6.3. Contraction of gallbladder (25 Marks)

7. Regarding renal function:
- 7.1. Define 'renal clearance' (20 Marks)
  - 7.2. Describe measurement of renal plasma flow by renal clearance method (40 Marks)
  - 7.3. Describe how high protein diet increases concentrating power of kidney (40 Marks)
8. Regarding reproduction,
- 8.1. Describe the factors that affect spermatogenesis (50 Marks)
  - 8.2. Describe the components leading to weight gain during pregnancy (50 Marks)
9. Describe:
- 9.1. Learning and memory (50 Marks)
  - 9.2. Visual problem in old age (25 Marks)
  - 9.3. Hearing problem in old age (25 Marks)
10. A 60-year-old male was admitted to the hospital with severe retrosternal pain radiating to the medial aspect of the left arm. He had profuse sweating all over his body. His pulse rate was 100/minute and the blood pressure was 70/60mm.Hg. The tongue was bluish in colour. He was diagnosed to have acute myocardial infarction. Explain the physiological basis of the following:
- 10.1. Retrosternal pain radiating to medial aspect of the left arm (25 Marks)
  - 10.2. Blood pressure of 70/60mm.Hg (25 Marks)
  - 10.3. Cyanosis (25 Marks)
  - 10.4. Profuse sweating (25 Marks)

