



PHYSIOLOGY II

Answer all five questions.

Answer part A & B in separate answer books

Part A

1. 1.1 Define oedema. (10 marks)
- 1.2 Explain the mechanism of formation of oedema in
- 1.2.1 heart failure. (35 marks)
- 1.2.2 nephrotic syndrome. (35 marks)
- 1.3 Explain why oedema disappears when an oedematous patient is dehydrated following diarrhoea. (20 marks)
2. Using physiological principals explain why
- 2.1 there is splitting of the second heart sound. (30 marks)
- 2.2 a person standing for a long period of time may faint. (40 marks)
- 2.3 tension pneumothorax is life threatening. (30 marks)
3. 3.1 Using the information given below, calculate the following:
- 3.1.1 PAH clearance
- 3.1.2 Effective renal plasma flow
- 3.1.3 Actual renal plasma flow
- 3.1.4 Renal blood flow
- Urine flow rate – 0.9 mL/min
 - Conc. of PAH in urine – 15 mg/mL
 - Conc. of PAH in plasma – 0.02 mg/mL
 - PAH extraction ratio – 0.9
 - Haematocrit – 0.45
- (40 marks)
- 3.2 Explain using physiological principles, how urine output decreases when there is a fall in renal blood flow. (60 marks)

Part B

4. 4.1 List 5 factors that contribute to the establishment of the resting membrane potential in a nerve cell. (20 marks)
- 4.2 Draw and label a diagram of an action potential of a nerve cell. (20 marks)
- 4.3 Describe the ionic basis of an action potential in a nerve cell. (30 marks)
- 4.4 Describe the differences in action potentials of a cardiac muscle cell and a skeletal muscle cell. (30 marks)
5. Write short notes on
- 5.1 chemical control of respiration. (25 marks)
- 5.2 erythropoiesis. (25 marks)
- 5.3 obstructive jaundice. (25 marks)
- 5.4 precocious puberty. (25 marks)