



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FIRST BPHARM PART II EXAMINATION –NOVEMBER 2021

PH 1254 HUMAN BIOLOGY II – SEQ

TIME: THREE HOURS

INSTRUCTIONS

- There are **six** questions in part **A, B, C, D, E, F** and **G** in this SEQ paper.
- Answer each part in separate booklet provided.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

PART A

- 01.
- 1.1 List **five** functions of the kidneys. *(10 marks)*
 - 1.2 What is glomerular filtration? *(05 marks)*
 - 1.2.1 Briefly outline the factors affecting the glomerular filtration. *(15 marks)*
 - 1.2.2 Describe how Tubuloglomerular feedback (TGF) mechanism regulate the glomerular filtration. *(30 marks)*
 - 1.3 With an aid of a diagram, outline the mechanism of sodium (Na^+) reabsorption by the proximal convoluted tubule. *(40 marks)*
- 02.
- 2.1 Define the following terms.
 - 2.1.1 Resting Membrane Potential (RMP) *(10 marks)*
 - 2.1.2 Threshold potential *(10 marks)*
 - 2.2 Write short notes on the following.
 - 2.2.1 Sympathetic nervous system *(20 marks)*
 - 2.2.2 Parasympathetic nervous system *(20 marks)*
 - 2.3 Outline the steps involved in generating an Excitatory Post Synaptic Potential (EPSP) at the Neuro Muscular Junction (NMJ). *(40 marks)*

PART B

- 03.
- 3.1
 - 3.1.1 Briefly outline how the hypothalamus and pituitary regulate the secretion of ovarian hormone. *(25 marks)*
 - 3.1.2 What is corpus luteum? *(06 marks)*
 - 3.1.3 Name **two** hormones secreted by corpus luteum. *(04 marks)*
 - 3.1.4 What is LH surge? *(05 marks)*
 - 3.1.5 List **five** changes that occur in a girl during puberty. *(10 marks)*

PART C

- 3.2 Explain the role of Ca^{++}
 - 3.2.1 at the nerve ending at a neuromuscular junction. *(20 marks)*
 - 3.2.2 inside a skeletal muscle cell during muscle contraction. *(20 marks)*
- 3.3 Briefly explain the following terms.
 - 3.3.1 Competitive neuromuscular blocker *(05 marks)*
 - 3.3.2 Depolarizing neuromuscular blocker *(05 marks)*

PART D

04.

4.1 Fill the table below by giving average water gains and losses in a healthy young adult male. (15 marks)

Water gains	Volume (ml.)	Water losses	Volume (ml.)

- 4.2 State the percentage of body fluid volume distribution in a healthy young adult male. (15 marks)
- 4.3 State **three** factors that affect the body fluid volume distribution. (15 marks)
- 4.4 State **two** hormones which control body water. (10 marks)
- 4.5 Briefly describe the mechanism of control of water by one of the hormones stated in section 4.4. (10 marks)
- 4.6 Define oedema. (10 marks)
- 4.7 Describe how oedema is developed in liver failure. (25 marks)

PART E

05.

- 5.1
 - 5.1.1 Illustrate the human urinary system. (20 marks)
 - 5.1.2 List the components of the urinary system and outline the functions of each component. (20 marks)
- 5.2 Explain briefly the blood supply of the liver. (30 marks)
- 5.3 List the components of the immune system. (30 marks)

PART F

06.

- 6.1
 - 6.1.1 State the groups of spinal nerves indicating the number of nerves that belong to each group. (10 marks)
 - 6.1.2 Outline briefly the arrangement of the gray and white matter in the spinal cord using a labelled diagram. (15 marks)
 - 6.1.3 Name the 12 cranial nerves and indicate one function of each cranial nerve. (25 marks)

PART G

6.2

- 6.2.1 State **three** different types of endocrine organs with two examples for each type. (15 marks)
- 6.2.2 Briefly describe the anatomy of the adrenal gland including the hormones secreted by it. (20 marks)
- 6.2.3 Describe the light microscopic appearance of thyroid gland using a labeled diagram. (15 marks)

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