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**UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES**  
**DEPARTMENT OF PHARMACY**  
**FIRST BPHARM PART I EXAMINATION – JULY 2018**  
**PH 1144 HUMAN BIOLOGY I (SEQ)**

**TIME: THREE HOURS**

**INSTRUCTIONS**

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

**PART A**

1.

1.1. Explain the following terms.

- 1.1.1. Ejection fraction of the left ventricle. (10 marks)
- 1.1.2. Automaticity of the pacemaker cells (ionic basis not required). (10 marks)
- 1.1.3. Absolute refractory period of the myocardial cells. (10 marks)

1.2. Explain the importance of the diastolic time for normal cardiac function. (20 marks)

1.3. Write **three** steps you would take in order to obtain an accurate blood pressure reading. (10 marks)

1.4. Write **three** complications of untreated hypertension. (10 marks)

1.5. Explain briefly how the baroreceptors help in compensation of hypovolaemic shock. (20 marks)

1.6. Write **two** important principles in management of hypovolaemic shock. (10 marks)

**PART B**

2.

2.1. Partial pressure of oxygen in atmospheric air is 158 mmHg and when it reaches pulmonary alveoli it is reduced to about 100 mmHg. Explain this physiologically. (15 marks)

2.2. Surfactant deficiency leads to collapse of alveoli in some patients. Explain this physiologically. (15 marks)

2.3. Briefly describe the modes of carbon dioxide transport in blood. (30 marks)

2.4. Describe the role of chemoreceptors in regulation of respiration. (40 marks)

**PART C**

3.

3.1. Explain how

3.1.1. steatorrhea occurs in common bile duct obstruction. (40 marks)

3.1.2. histamine two blockers (H<sub>2</sub>-blockers) are useful in treating peptic ulcers. (35 marks)

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**PART D**



3.2. Describe different types of ion channels which have different regulatory processes. (25 marks)

4.

- 4.1.
  - 4.1.1. List functions of proteins in the cell membrane. (10 marks)
  - 4.1.2. Describe briefly **two of the functions** mentioned in 4.1.1. (20 marks)
- 4.2. Explain the differences between simple diffusion and facilitated diffusion. (20 marks)

**PART E**

- 4.3.
  - 4.3.1. Define the term 'anaemia'. (10 marks)
  - 4.3.2. What is pernicious anaemia? (10 marks)
  - 4.3.3. Give **two** causes for microcytic anaemia. (10 marks)
- 4.4.
  - 4.4.1. What is haemostasis? (10 marks)
  - 4.4.2. State the functions of platelets in haemostasis. (10 marks)

**PART F**

5.

- 5.1. Describe the basic structure of the gastro intestinal system using a labeled diagram. (50 marks)
- 5.2. What are the associated glands of the gastro intestinal system? (20 marks)
- 5.3. Describe the functions of the each gland mentioned in 5.2. (30 marks)

**PART G**

6.

- 6.1. State basic steps in intrauterine development from ovulation to birth. (25 marks)
- 6.2. Describe briefly the first week of embryological development. (10 marks)
- 6.3. Describe briefly the structure of fluid mosaic model. (15 marks)

**PART H**

- 6.4. Skin is the continuous outer covering of the body.
  - 6.4.1. Draw a labeled diagram of the skin of the scalp. (20 marks)
  - 6.4.2. List the functions of the skin. (10 marks)
  - 6.4.3. Describe the adaptation of the structure of the skin for its function. (20 marks)

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