



QUALIFICATION : <b>BACHELOR of HUMAN NUTRITION</b>	
QUALIFICATION CODE: 08BOHN	LEVEL: 5
COURSE: GASTRO INTESTINAL AND ENDOCRINE PHYSIOLOGY	COURSE CODE: <b>GEP521S</b>
DATE: <b>JANUARY 2024</b>	SESSION: 2
DURATION: <b>3 HOURS</b>	MARKS: <b>100</b>

**SECOND OPPORTUNITY / SUPPLEMENTARY: EXAMINATION QUESTION PAPER**

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**MODERATOR: DR ELZABE VAN DER COLF**

**INSTRUCTIONS:**

1. Answer all questions on the separate answer sheet.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

**PERMISSIBLE MATERIALS:**

1. None

**ATTACHEMENTS**

1. None

**This paper consists of 6 pages including this front page**

## QUESTION 1: MULTIPLE CHOICE QUESTIONS

[15 MARKS]

Write only the number of each question and next to it indicate your answer in the ANSWER BOOK.

(Each question carries 1 mark)

1.1 The hormone that increases blood  $\text{Na}^+$  levels:

- A. Prolactin
- B. Aldosterone
- C. Parathyroid hormone
- D. Cortisol

1.2 The measurement of gastrin in the blood is used as a diagnostic tool for \_\_\_\_\_.

- A. Peptic ulcer disease
- B. Zollinger-Ellison syndrome
- C. Celiac disease
- D. Cystic fibrosis

1.3 What does the liver do to help digestion:

- A. Makes important enzymes
- B. Neutralizes stomach acid
- C. Produces bile
- D. Regulates insulin

1.4 Celiac disease is associated with \_\_\_\_\_.

- A. Disaccharide deficiency
- B. Gluten intolerance
- C. Vitamin B12 deficiency
- D. Lactose intolerance

1.5 Where does most of the digestive process take place:

- A. Small intestine
- B. Large intestine
- C. Stomach
- D. All of the above

1.6 Which of these best maintains intestinal health:

- A. Starches
- B. Vitamins
- C. Fiber
- D. Fat

1.7 Releasing hormones come from one of the following:

- A. Thyroid gland
- B. Anterior pituitary
- C. Posterior pituitary
- D. Hypothalamus

1.8 A healthy 12-year-old boy ingests a meal containing 20% fats, 50% carbohydrates, and 30% proteins.

The gastric juice is most likely to have the lowest pH in this boy at which time after the meal (in hours):

- A. 0.5
- B. 1.0
- C. 2.0
- D. 3.0
- E. 4.0

1.9 Stools that contain excess fat are known as:

- A. Fistulas
- B. Steatorrhea
- C. Zollinger-Ellison syndrome
- D. Amoebiasis
- E. Osmotic diarrhea

1.10 The source and action of epinephrine:

- A. Adrenal cortex; sodium retention
- B. Adrenal cortex; female sex hormone
- C. Adrenal medulla; fight-or-flight response
- D. Adrenal cortex; gluconeogenesis

1.11 A patient has a goiter associated with high plasma levels of both TRH and TSH. Her heart rate is elevated.

The patient most likely has which condition:

- A. An endemic goitre
- B. A hypothalamic tumour secreting large amounts of TRH
- C. A pituitary tumour secreting large amounts of TSH
- D. Graves disease

1.12 All of the following are endocrine glands except:

- A. Pituitary
- B. Thyroid
- C. Spleen
- D. Adrenals
- E. Parathyroids

1.13 Which cells in the pancreatic islets produce somatostatin:

- A.  $\alpha$ -cells
- B.  $\beta$ -cells
- C.  $\delta$ -cells
- D. F-cells

1.14 Under which conditions would you expect an increase in ADH secretion:

- A. An individual ingests excess water
- B. The posterior pituitary is removed because it has a tumour
- C. An individual is rescued after three days in the desert without food or water
- D. An individual receives an injection of synthetic antidiuretic hormone

1.15 Which of these can cause heartburn:

- A. Being overweight
- B. Lying down soon after eating a large meal
- C. Eating high-fat foods
- D. All of the above

## QUESTION 2: TRUE / FALSE QUESTIONS

[15 MARKS]

Assess the following statements and decide whether they are true or false. Write only the number of each question and next to it indicate your answer as true or false in the ANSWER BOOK. (Each question carries 1 mark)

2.1 Food is contained in the gastrointestinal tract from the time of ingestion until it is completely digested and the waste prepared for elimination.

2.2 The development of T- lymphocytes is regulated by hormones known as "mineralcorticoids"

2.3 The parathyroid hormone acts in a manner that is antagonistic to the activity of "calcitonin"

2.4 'Peristalsis' is a voluntary muscle movement which moves food along the digestive tract

2.5 Swelling of the thyroid gland due to a lack of iodine is referred to as a "goitre"

2.6 An adequate secretion of hormones from the adrenal cortex can result in "Cushings" disease

2.7 The "beta" cells of the pancreas are responsible for the production of glucagon.

2.8 Some of the microbes that often invade other organs of the body are rarely found in the stomach.

The reason for this is the presence of HCl.

2.9 The hormone ACTH is produced by the "adrenal gland;" & it regulates the activity of the adrenal cortex.

- 2.10 Parietal (oxyntic) cells release intrinsic factor
- 2.11 The main structural layers of the stomach encompass the lumen, submucosa and externa
- 2.12 The follicle stimulating hormone is a product of the "posterior" pituitary gland that acts on the ovaries and testes.
- 2.13 The "adrenal gland" lies in the fold of the mesenteries.
- 2.14 Both thyroxin and triiodothyronine increase the rate of "metabolism" in the body
- 2.15 The composition of the hormone insulin is "carbohydrate."
- 2.16 Pepsinogen is the precursor to the gastric enzyme for protein digestion and is secreted by the parietal cells.

**SECTION B: SHORT / LONG ANSWER QUESTIONS**

**[70 MARKS]**

**QUESTION 3: DEFINE THE FOLLOWING:**

**[18 MARKS]**

(Please answer ALL of the questions in this section.)

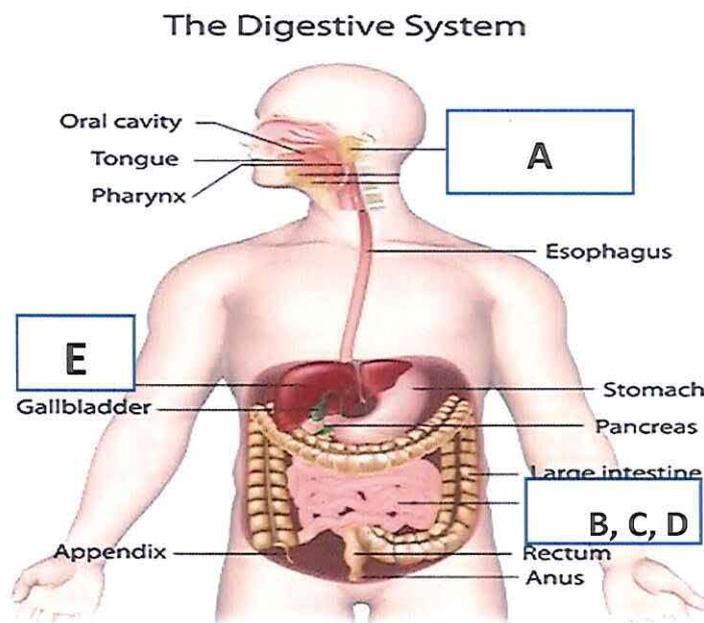
- 3.1 Grave's disease (2)
- 3.2 Celiac disease (2)
- 3.3 Hormone (2)
- 3.4 Absorptive state (2)
- 3.5 Systemic lupus erythematosus (SLE) (2)
- 3.6 Digestion (2)
- 3.7 Ingestion (2)
- 3.8 Cystic fibrosis (2)
- 3.9 Hashimoto's disease (2)

**QUESTION 4: LONG QUESTIONS**

**[52 MARKS]**

- 4.1 Cite the hormones that may be involved in the regulation of water and electrolytes to control the effects of diarrhea? (2)
- 4.2 Describe the main difference between endocrine and exocrine glands? (2)
- 4.3 Identify the two hormones released from the posterior pituitary, their target cells, and their principal actions? (6)

- 4.4 Describe the difference between anabolic and catabolic hormones?  
Provide 3 examples of each? (8)
- 4.5 Compare congenital and acquired lactase deficiency? (8)
- 4.6 Explain the complex process of follicle stimulating hormone (FSH) and luteinizing hormone (LH) in women? (10)
- 4.7 Using the anatomical figure below, name and state the function of organ:  
Write only the letter of each question (A, B, C etc.) and next to it indicate your answers in the ANSWER BOOK. (10)



- 4.8 A 40-year-old man noticed enlargement of his feet (suddenly ill-fitting shoes) and hands. His lower jaw is becoming prominent, his facial features and skin are becoming coarse and his teeth are becoming separated from one another.
- 4.8.1. What could have caused these symptoms? (1)
- 4.8.2. Name this condition in children. (1)
- 4.8.3. Explain the major difference between the manifestation in adults and children? (1)
- 4.8.4. Mention any 3 possible complications of this disease? (3)

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**END OF QUESTION PAPER**