



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH AND APPLIED SCIENCES**

**DEPARTMENT OF HEALTH SCIENCES**

<b>QUALIFICATIONS:</b> BACHELOR OF HUMAN NUTRITION	
<b>QUALIFICATION CODE:</b> 08BOHN	<b>LEVEL:</b> 5
<b>COURSE CODE:</b> GEP521S	<b>COURSE NAME:</b> GASTRO-INTESTINAL AND ENDOCRINE PHYSIOLOGY
<b>SESSION:</b> JANUARY 2020	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>SUPPLEMENTARY / SECOND OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
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<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Write clearly and neatly.</li><li>3. Number the answers clearly.</li></ol>

**PERMISSIBLE MATERIALS**

1. None

**THIS QUESTION PAPER CONSISTS OF 4 PAGES** (Excluding this front page)

## SECTION A

### Question 1

(20 marks)

*Select the correct answer from the options. (1 Mark for each correct answer)*

(14)

- 1.1 Intrinsic factor would be missing from the stomach contents of a person lacking:
- a. chief cells
  - b. G-cells
  - c. mucus cells
  - d. parietal cells
  - e. islets of langerhans cells
- 1.2 The chemical digestion of this class of compounds begins in the mouth:
- a. Carbohydrates
  - b. Proteins
  - c. Water
  - d. Nucleic acids
  - e. Vitamins
- 1.3 The bulk of digestive enzymes are secreted at this site:
- a. the mouth
  - b. the small intestine
  - c. the oesophagus
  - d. the stomach
  - e. none of them
- 1.4 An abnormal protrusion of the abdominal contents from a weakness in the abdominal wall is called:
- a. diverticulum
  - b. fistula
  - c. rugae
  - d. hernia
  - e. torsion
- 1.5 Excessive absorption of which substance is responsible for Wilson's disease?
- a. iron
  - b. copper
  - c. magnesium
  - d. calcium
  - e. zinc
- 1.6 Which of the following is not a feature of micronutrient deficiency?
- a. Fat accumulation
  - b. Fluid accumulation
  - c. Thin skin and hair
  - d. Cracked lips and bleeding gums
  - e. Paleness of the palms and gums

- 1.7 Backward movement of food from the large intestine to the small intestine is prevented by:
- ileocecal valve
  - pyloric canal
  - lower oesophageal sphincter
  - pyloric sphincter
  - gastric juices
- 1.8 The effect of hormones released through a duct that drains at the site of action is called:
- Neuroendocrine
  - Endocrine
  - Paracrine
  - Exocrine
  - Autocrine
- 1.9 Acid reflux into the oesophagus occurs in:
- Achalasia
  - Oesophageal atresia
  - Trachea-oesophageal fistulae
  - Dysphagia
  - Barrett oesophagus
- 1.10 The following is true regarding bicarbonate secretion in the GIT **except**:
- Secreted by pancreas and intestinal mucosal cells
  - It protects the mucosal lining of the stomach
  - It protects the mucosal lining of the mouth
  - It protects the mucosal lining of the intestines
  - It activates the digestive enzymes in the small intestine
- 1.11 Adrenal hyper-function, resulting from diseases located in the adrenals or other organs outside the brain is known as:
- Cushing's syndrome
  - Sheehan's syndrome
  - Cushing's disease
  - Adreno-genital syndrome
  - Graves' disease
- 1.12 Acromegaly is typically produced by tumours of the:
- Pituitary
  - Thyroid
  - Parathyroid
  - Adrenals
  - Testis

- 1.13 Which of the following hormones regulates the homeostasis of potassium and sodium?
- a. Calcitonin
  - b. Parathyroid hormone
  - c. Androgen
  - d. Aldosterone
  - e. Glucagon
- 1.14 Stools contain excess fat:
- a. Fistulas
  - b. Steatorrhoea
  - c. Zollinger-Ellison syndrome
  - d. Amoebiasis
  - e. Osmotic diarrhoea

**Indicate which of the following statements is True or False. (1 Mark for each correct answer)** (6)

- 1.15 Growth hormone suppression tests involve oral glucose intake.
- 1.16 Diabetes accounts for almost half of all traumatic amputations.
- 1.17 Intrinsic factor is required for the intestinal absorption of vitamin D in the upper ileum.
- 1.18 Thyroid hormone in circulation is more than 90% protein bound.
- 1.19 Reverse T3 (rT3) is produced in higher amounts in preparation for 'fight and flight'.
- 1.20 Positive feedback is responsible for control of hormone secretion from most glands.

## SECTION B

### **Question 2** (22 marks)

- 2.1 Describe the meaning of the following terms:
- 2.1.1 Ketogenesis (2)
  - 2.1.2 Glycogenolysis (2)
  - 2.1.3 Anabolism (2)
  - 2.2.4 Hypoglycaemia (2)
  - 2.2.5 Absorption (2)
- 2.2 Discuss the hormones that maintain blood sugar levels between meals and their actions. (12)



### Question 3

(20 marks)

- 3.1 Describe the functions of the liver, highlighting its blood supply and architecture which allows it to serve its functions. (8)
- 3.2 For **any 3** sites of the GIT, mention its role in digestion and absorption, at least 1 disorder that can affect nutrition and state how nutrition can be affected due to the disorder. (Each site earns 4 marks x 3 = 12)

## SECTION C

### Question 4

(38 marks)

- 4.1 A 35 year old woman has been diagnosed with Cushing's syndrome.
- 4.1.1 Discuss all the hormones that are implicated in this disease process directly or indirectly and the expected derangement in their levels in this condition. (8)
- 4.1.2 Describe the manifestation of Cushing's syndrome. (10)
- 4.2 A mother complains to you about her 4 year old son whose legs have been growing in a distorted manner such that they are bent in a bow. You asked further and realised that the boy has not started school and is indoors most of the day since the mother does not feel comfortable allowing him to play outside for fear of him being injured.
- 4.2.1 What disease do you think this boy has and what nutrient is he lacking? (2)
- 4.2.2 Mention the risk factors of this disease? (3)
- 4.2.3 Enumerate other clinical features you would expect to find in the child. (5)
- 4.2.4 What advice would you give this mother to contribute to the child's improvement? (3)
- 4.3 A young woman has noticed that she has been losing weight progressively, though she has a huge appetite recently. She has also been told by her family members that she has been acting unusually as she is quite hyperactive, complains disproportionately about being hot even when everyone else is cold, and her eyes are protruding. In addition, she has noticed a swelling in her neck.
- 4.3.1 What condition do you suspect this woman has? (1)
- 4.3.2 Highlight the dietary element implicated this condition and what is being done to prevent deficiency in the general population. (2)
- 4.3.3 Describe the actions of the hormone in this disease and the mechanism through which it causes weight loss. (4)

**Good luck!!!**