



**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> NOVEMBER 2019	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>FIRST OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	DR LARAI AKU-AKAI
<b>MODERATOR:</b>	MS ELZABE VAN DER COLF

<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 5 PAGES** (Excluding this front page)

## SECTION A

### Question 1

(20 marks)

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

(15)

- 1.1 Gastrin would be missing from the stomach contents of a person lacking:
- chief cells
  - G-cells
  - mucus cells
  - parietal cells
  - islets of langerhans cells
- 1.2 The chemical digestion of this class of compounds begins in the stomach:
- Carbohydrates
  - Proteins
  - Lipids
  - Nucleic acids
  - Vitamins
- 1.3 Digestive enzymes are secreted into all these sites **except**:
- the mouth
  - the small intestine
  - the esophagus
  - the stomach
  - none of them
- 1.4 All of the following are secreted by the pancreas into the duodenal region of the small intestine **except**:
- Bicarbonate
  - Amylase
  - Nuclease
  - Peptidase
  - Intrinsic factor
- 1.5 The following can be responsible for intestinal obstruction **except**:
- Intestinal torsion
  - Short bowel syndrome
  - Intussusception
  - Adhesions
  - Hernias

- 1.6 Excessive, abnormal deposition of which substance is responsible for amyloidosis?
- iron
  - protein
  - sugar
  - calcium
  - fat
- 1.7 The following are features of protein deficiency **except**:
- Fat accumulation
  - Fluid accumulation
  - Thin skin
  - Thin, brown hair
  - Muscle wasting
- 1.8 Adrenal hyper-function, resulting from tumours located in the pituitary is known as:
- Cushing's syndrome
  - Sheehan's syndrome
  - Cushing's disease
  - Adreno-genital syndrome
  - Graves' disease
- 1.9 Backward movement of food from the small intestine to the stomach is prevented by:
- ileocecal valve
  - pyloric canal
  - lower oesophageal sphincter
  - pyloric sphincter
  - gastric juices
- 1.10 The effect of hormones released into the blood circulation and carried to a distant effector organ is called:
- Neuroendocrine
  - Endocrine
  - Paracrine
  - Merocrine
  - Autocrine
- 1.11 Bowlegs, craniotabes, and rachitic rosary in a growing child are signs of:
- Osteoporosis
  - Osteopetrosis
  - Vitamin B<sub>1</sub> deficiency
  - Vitamin D deficiency
  - Vitamin A deficiency

- 1.12 Backward movement of gastric contents into the oesophagus occurs in:
- Achalasia
  - Oesophageal atresia
  - Trachea-oesophageal fistulae
  - Dysphagia
  - Barrett oesophagus
- 1.13 Adrenal hypofunction may be caused by all **except**:
- Adrenal tuberculosis
  - Bilateral primary adrenal carcinoma
  - Metastases of breast carcinoma to the adrenals
  - Autoimmune adrenalitis
  - Adrenal cortical hyperplasia
- 1.14 Tumours of the pituitary may secrete any one of the following hormones **except**:
- Growth hormone
  - Prolactin
  - Follicle-stimulating hormone
  - Thyroid-stimulating hormone
  - Cortisol
- 1.15 In biliary obstruction there is a marked increase of blood:
- Haemoglobin
  - Bilirubin
  - Amylase
  - Insulin
  - Albumin

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

(5)

- 1.16 Another name for secondary hypoadrenalism is Addison's disease.
- 1.17 Activation of the salivary parasympathetic nerves inhibits salivary secretion.
- 1.18 Low ACTH levels could manifest as hyperpigmentation.
- 1.19 Parietal cells of the gastric glands secrete intrinsic factor.
- 1.20 Follicle stimulating hormone release is stimulated by Gonadotropin Releasing Hormone.

## SECTION B

### Question 2 (22 marks)

- 2.1 Describe the meaning of the following terms:
- 2.1.1 Lipolysis (2)
  - 2.1.2 Glycogenesis (2)
  - 2.1.3 Catabolism (2)
  - 2.2.4 Gluconeogenesis (2)
  - 2.2.5 Malabsorption (2)
- 2.2 Discuss two (2) anabolic and two (2) catabolic hormones each, mentioning their actions. (12)

### Question 3 (28 marks)

- 3.1 Discuss the symptoms of gastro-intestinal (GI) dysfunction and mention tests that can be used to diagnose GI disorders. (12)
- 3.2 Describe the clinical features of hyperthyroidism, highlighting how it affects nutrition. (8)
- 3.3 Briefly discuss the clinical features of adrenocortical hyper-function. (8)

## SECTION C

### Question 4 (30 marks)

- 4.1 A 40 year old man presents with symptoms of upper gastrointestinal discomfort, dysphagia (difficulty to swallow), and a nonspecific feeling of pressure or aching in his chest. X-ray findings indicate distention (expansion) of the lower oesophagus, most likely caused by failure of receptive relaxation of the gastroesophageal sphincter. Which condition best fits this description? (2)
- 4.2 A 55 year old man with a history of chronic alcohol consumption presents to his local physician with nonspecific complaints of dyspepsia (epigastric pain). Examination and diagnostic testing reveal that this individual has selective destruction of the gastric glands of the stomach.
- 4.2.1 What condition do you suspect he has? (2)
  - 4.2.2 Mention some of the substances secreted from the gastric glands and conditions that could result from lack of these substances. (6)
- 4.3 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.
- 4.3.1. What could have caused these symptoms? (1)
  - 4.3.2. What is this condition called when it occurs in younger people? (1)

- 4.3.3. Explain the major difference between the manifestation in adults and children? (1)
- 4.3.4. Mention two (2) possible complications of this disease. (2)
- 4.4 A 54-year old woman with a history of intermittent abdominal pain associated with fatty meals presents to the hospital complaining of severe abdominal pain. She was found to have yellowness of the eyes and she said her urine was darker in colour than usual. Ultrasound shows small stones in the gallbladder. Lab tests return showing:
- Bilirubin: 1.6 mg/dl (*Normal 0.3-1.2 mg/dl*)
  - Aspartate aminotransferase (AST): 47 U/L (*Normal 8-20 U/L*)
  - Alanine aminotransferase (ALT): 51 U/L (*Normal 7-40 U/L*)
  - Alkaline Phosphatase: 112 U/L (*Normal 25-100 U/L*)
- 4.4.1 Based on the findings above, explain the pathology causing her condition and their effects. (4)
- 4.4.2 What would be the most suitable dietary advice that should be given to her for the duration of the condition? (2)
- 4.5 A 55 year old overweight man as recently noticed that he gets thirsty very often, passes urine more frequently than usual, and that his appetite has greatly increased, and he feels hungry often.
- 4.5.1 What disease do you think he has? (1)
  - 4.5.2 Explain the physiology behind the clinical features he is experiencing. (6)
  - 4.5.3 What tests can be done to confirm that he has this condition? (2)

**Good luck!!!**