



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES

DEPARTMENT OF HEALTH SCIENCES

QUALIFICATION: BACHELOR OF HUMAN NUTRITION	
QUALIFICATION CODE: 08BOHN	LEVEL: 8
COURSE CODE: NCA811S	COURSE NAME: Nutraceuticals and Alternative Nutritional Remedies
SESSION: JULY 2022	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SUPPLEMENTARY/SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	MR. ERICK NATANGWE UUKULE
MODERATOR:	MRS MARI-LOUISE JEFFERY

INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

PERMISSIBLE MATERIALS

NONE

THIS EXAMINATION QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

SECTION A

QUESTION 1

(10 MARKS)

State whether the following statements are true or false and provide a reason for your choice.

Each correct answer and reason are worth 2 marks.

- 1.1 Nutraceuticals are similar to pharmaceuticals. (2)
- 1.2 Nutritional requirements are usually generalised to a population as a whole. (2)
- 1.3 The impact of genetic variation on nutritional requirements is more subtle than that of pharmaceutical agents. (2)
- 1.4 A niacin (vitamin B3) deficiency may cause changes in the epigenetic regulation of gene expression. (2)
- 1.5 The control of blood pressure is only influenced by genetic variants. (2)

QUESTION 2

(15 MARKS)

- 2.1 Define the following terms:
- a) Food supplement. (3)
- b) Functional Food. (3)
- c) *Ethnopharmacology*. (4)
- 2.2 Which analytical tool enables you to compare plant species used among different culture? Select all the correct statement(s). (1)
- a) DIC
- b) F_{ic}
- c) RI index
- d) UV index

- 2.3 In the context of food security, which are the four (4) elements related to this concept? (2)
- a) Food accessibility
 - b) Food preparation
 - c) Food quality
 - d) Food utilization
 - e) Food availability
 - f) Food quantity
 - g) Stability or sustainability
- 2.4 What is the nutritional value of *Cleome gynandra* called *Ombidi*? (2)

SECTION B

- QUESTION 3** (25 MARKS)
- 3.1 Differentiate between Recommended Daily Allowance (RDA) and Upper Limit (UL). (4)
- 3.2 Briefly discuss how the following methods are used in identifying genetic variations that affect dietary requirements: (4)
- a) The candidate gene approach. (4)
 - b) Evolutionary genomics. (3)
- 3.3 State whether the following statement is True/False and defend your choice. (4)
- “Changes in the structure of the chromatin can also influence gene expression”*
- 3.4 Outline any three (3) kinds of reactions that can lead to Histones modification. (3)
- 3.5 Where on the histones do the reactions you listed above take place? (1)
- 3.6 Claude Bernard (1813-1878), is rightfully seen as one of the first researchers to conduct what today we would call an ethno-pharmacological study. Briefly explain who he was, the substance on which he conducted

his research and what his scientific observations were. (6)

SECTION C

QUESTION 4 (25 MARKS)

- 4.1 Outline any four (4) genetic determinants of diabetes. (4)
- 4.2 What is the difference between Nutraceuticals and Pharmaceuticals? (2)
- 4.3 Describe any two (2) approaches by which a food product can be made functional. (4)
- 4.4 Give four (4) aspects that are specific to the nature of indigenous knowledge. (4)
- 4.5 In the context of plants antimicrobial activity testing, select all the correct statement about the zone of inhibition. (3)
- a) It corresponds to the area where you can observe the bacterial growth.
 - b) It corresponds to the area around the disc.
 - c) The larger the zone of inhibition, the less the plant extract shows antibacterial properties.
 - d) The larger the zone of inhibition, the more the plant extract shows antibacterial properties.
 - e) If a plant extract shows a strong inhibition against *E.Coli*, it demonstrates its potential as antimicrobial agents towards bacteria that cause food spoilage.
- 4.6 Microarray technology has been identified as part of the new developments in nutrition. Briefly discuss its principle. (4)
- 4.7 Is there a place for digital technology in the field of personalised nutrition? Answer "yes or no" and provide a reason for your answer. (4)

QUESTION 5

(25 MARKS)

- 5.1 Briefly discuss how obesity may lead to Type 2 Diabetes. (5)
- 5.2 In most discussions, it is argued that there is a difference between functional foods and nutraceuticals. What is the fundamental difference between functional foods and nutraceuticals? (4)
- 5.3 What are recombinant nutraceuticals? (2)
- 5.4 Describe the antimicrobial effect of probiotic microorganisms. (4)
- 5.5 Outline the advantages and disadvantages of the following diets:
- a) DASH Diet. (5)
 - b) Low carbohydrate diet. (5)

All the best!!!!