



**PAMIBIA 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: 7
COURSE CODE: HNT711S	COURSE NAME: HUMAN NUTRITION I
SESSION: JUNE 2022	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION-QUESTION PAPER	
EXAMINER(S)	MR WALIOMUZIBU MUKISA GEORGE WILLIAM
MODERATOR:	MR ERICK UUKULE

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

PERMISSIBLE MATERIALS

NONE

THIS QUESTION PAPER CONSISTS OF 9 PAGES (Including this front page)

SECTION A:

(14 MARKS)

QUESTION 1. MULTIPLE CHOICE QUESTIONS

(14 MARKS)

Select the most appropriate answer from the options provided. (Each correct answer earns 1 mark)

- 1.1 Of the following which is the percentage of Basal Metabolic Rate used by the brain:
- a. 45%
 - b. 25%
 - c. 13%
 - d. 35%
- 1.2 Excess glucose in the body is often stored in the:
- a. Adipose tissue
 - b. Muscles
 - c. Kidneys
 - d. Muscles and liver
- 1.3 Of the following which one results in accumulation of excess nutrients in the body:
- a. Negative energy balance
 - b. Balanced energy
 - c. Positive energy balance
 - d. None of the above
- 1.4 The following are categories of metabolic syndrome except:
- a. Insulin resistance
 - b. Hypertension
 - c. Myocardia infarction
 - d. Hyper-lipoproteinemia
- 1.5 Of the following which is the major difference between type I diabetes mellitus and Type II diabetes mellitus:
- a. Type I cells do not take in enough glucose whereas type II cells take in excess glucose
 - b. Type II insulin and glucagon are very high in cells whereas type I they are less
 - c. Type I pancreas does not produce insulin whereas type II reaction of cells to insulin is reduced
 - d. Type I is associated with obesity and overweight whereas type II is much linked to genetic related factors

- 1.6 Which of the following condition occur during insulin resistance:
- Reduction in the reaction of cells to insulin
 - Reduced production of insulin by the pancreas
 - Glucose overload in cells occurs due to excessive cell reaction to presence of glucose
 - None of the above
- 1.7 Of the following minerals, which ones are important in the maintenance of electrolyte balance in the body:
- Calcium and Potassium
 - Sodium and Potassium
 - Iron and Calcium
 - Iodine and Iron
- 1.8 Chylomicrons are responsible for transportation of food lipids from the intestines to the adipose tissue and liver:
- True
 - False
- 1.9 Of the following which is a category of the lipids to the proper functioning of the body:
- Very low density lipoprotein
 - Low density lipoprotein
 - High density lipoprotein
 - Chylomicrons
- 1.10 During hunger the main source of energy to the body is:
- Glucose
 - Amino acids
 - Triglycerides
 - Vitamins
- 1.11 During hunger the central nervous system utilizes glucose and ketone bodies for energy generation:
- True
 - False
- 1.12 The biochemical process involved in the conversion of glycogen to glucose-6-phosphate is known as glycogenesis:

- a. True
 - b. False
- 1.13 Of the following which the biochemical process is involved in conversion pyruvic acid to glucose-6-phosphate:
- a. Glycolysis
 - b. Glycogenesis
 - c. Gluconeogenesis
 - d. Lipogenesis
- 1.14 Rickets and osteomalacia is deficiency of:
- a. Vitamin D and Calcium
 - a. Vitamin A and Iron
 - b. Vitamin C and Calcium
 - c. Vitamin E and Potassium

QUESTION 2.

(16 MARKS)

Evaluate the statements in each numbered section and the questions that follow

- 2.1 The Nutrition Assessment is a systematic approach to classify and synthesize important and relevant data needed to identify nutrition-related problems and their causes, using five domains. Please name the five (5) domains (5 marks)
- 2.2 Each domain above covers nutrition related aspects, which a nutritionist might want to know. Match the name of the correct domain to the following data set (5 marks)
- 2.2.1 Pale skin
 - 2.2.2 Special eating habits
 - 2.2.3 Role in the family
 - 2.2.4 Mid Upper Arm Circumference

2.2.5 Blood lipids

2.3 Classifying the data a nutritionist collected during the Nutrition Assessment does lead to a Nutrition Diagnosis.

To which of the three domains of Nutrition Diagnosis do the following

nutrition problems point (3 marks)

2.3.1 Too much energy dense foods in the diet

2.3.2 Not Ready for Diet/Lifestyle Change

2.3.3 Altered gastrointestinal function

2.4 Assessing an elderly woman living in a large family, you find that her muscles are small and weak. In her food record you find mainly pap with various sauces, occasionally enriched with some seasonal vegetables from the small garden. The calculated protein intake is less than 0.3 g protein / kg body weight / day. Since her dentition is devoid of several teeth, all food is soft-boiled.

Formulate a Nutrition Diagnosis (3 marks)

SECTION B: (49 MARKS)

QUESTION 3 (49 MARKS)

Read each question completely, and on your ANSWER SHEET, next to the question number, please write the full answer to the questions.

3.1 Explain the term nutrition assessment (2 marks)

3.2 Outline four (4) importance of nutrition assessment (4 marks)

3.3 Explain the different between nutrition counseling and nutrition support (4 marks)

3.4 Outline the eight (8) steps followed to measure the height of children of 24 months and older (8 marks)

3.5 During metabolism excess energy yielding nutrients are stored in the body

for future use. What is the storage form of the following nutrients (3 marks)

3.5.1 Glucose

3.5.2 Fat

3.5.3 Amino acids

3.6 Explain five (5) ways of controlling metabolic syndrome (10 marks)

3.7 A group of third Human Nutrition students conducted a rapid nutritional

assessment and obtain the following results in Table 2 below.

Use the weight for height Z-scores (WHZ) tables to determine

the nutritional status and WHZ of the children (12 marks)

Table 2

ID	Sex	Age(months)	Height(cm)	Weight(kg)	WHZ	Nutritional status
1	F	37	98.2	11.5		
2	M	42	99.5	10.9		
3	M	13	69.9	7.5		
4	F	10	68.2	5.0		
5	M	25	97.2	11.9		
6	M	28	89.7	12.9		

Weight-for-height (children 24–59 months)

BOYS, 24–59 months, weight-for-height					
Height (cm)	SAM <-3	MAM ≥-3 to <-2	Normal ≥-2 to ≤+2	Overweight >+2 to ≤+3	Obesity >+3
	Weight (kg)				
72	0-7.0	7.1-7.6	7.7-10.7	10.8-11.7	>11.7
73	0-7.2	7.3-7.8	7.9-11.0	11.1-12.0	>12.0
74	0-7.3	7.4-7.9	8.0-11.2	11.3-12.2	>12.2
75	0-7.5	7.6-8.1	8.2-11.4	11.5-12.5	>12.5
76	0-7.6	7.7-8.3	8.4-11.7	11.8-12.8	>12.8
77	0-7.8	7.9-8.4	8.5-11.9	12.0-13.0	>13.0
78	0-7.9	8.0-8.6	8.7-12.1	12.2-13.3	>13.3
79	0-8.1	8.2-8.7	8.8-12.3	12.4-13.5	>13.5
80	0-8.2	8.3-8.9	9.0-12.6	12.7-13.7	>13.7
81	0-8.4	8.5-9.1	9.2-12.8	12.9-14.0	>14.0
82	0-8.6	8.7-9.2	9.3-13.0	13.1-14.2	>14.2
83	0-8.7	8.8-9.4	9.5-13.3	13.4-14.5	>14.5
84	0-8.9	9.0-9.6	9.7-13.5	13.6-14.8	>14.8
85	0-9.1	9.2-9.9	10.0-13.8	13.9-15.1	>15.1
86	0-9.3	9.4-10.1	10.2-14.1	14.2-15.4	>15.4
87	0-9.5	9.6-10.3	10.4-14.4	14.5-15.7	>15.7
88	0-9.7	9.8-10.5	10.6-14.7	14.8-16.0	>16.0
89	0-9.9	10.0-10.7	10.8-14.9	15.0-16.3	>16.3
90	0-10.1	10.2-10.9	11.0-15.2	15.3-16.6	>16.6
91	0-10.3	10.4-11.1	11.2-15.5	15.6-16.9	>16.9
92	0-10.5	10.6-11.3	11.4-15.8	15.9-17.2	>17.2
93	0-10.7	10.8-11.5	11.6-16.0	16.1-17.5	>17.5
94	0-10.9	11.0-11.7	11.8-16.3	16.4-17.8	>17.8
95	0-11.0	11.1-11.9	12.0-16.6	16.7-18.1	>18.1
96	0-11.2	11.3-12.1	12.2-16.9	17.0-18.4	>18.4
97	0-11.4	11.5-12.3	12.4-17.2	17.3-18.8	>18.8
98	0-11.6	11.7-12.5	12.6-17.5	17.6-19.1	>19.1
99	0-11.8	11.9-12.8	12.9-17.9	18.0-19.5	>19.5
100	0-12.0	12.1-13.0	13.1-18.2	18.3-19.9	>19.9
101	0-12.2	12.3-13.2	13.3-18.5	18.6-20.3	>20.3

GIRLS, 24–59 months, weight-for-height					
Height (cm)	SAM <-3	MAM ≥-3 to <-2	Normal ≥-2 to ≤+2	Overweight >+2 to ≤+3	Obesity >+3
	Weight (kg)				
72	0-6.6	6.7-7.2	7.3-10.5	10.6-11.6	>11.6
73	0-6.8	6.9-7.4	7.5-10.7	10.8-11.8	>11.8
74	0-6.9	7.0-7.5	7.6-11.0	11.1-12.1	>12.1
75	0-7.1	7.2-7.7	7.8-11.2	11.3-12.3	>12.3
76	0-7.2	7.3-7.9	8.0-11.4	11.5-12.6	>12.6
77	0-7.4	7.5-8.0	8.1-11.6	11.7-12.8	>12.8
78	0-7.5	7.6-8.2	8.3-11.8	11.9-13.1	>13.1
79	0-7.7	7.8-8.3	8.4-12.1	12.2-13.3	>13.3
80	0-7.8	7.9-8.5	8.6-12.3	12.4-13.6	>13.6
81	0-8.0	8.1-8.7	8.8-12.6	12.7-13.9	>13.9
82	0-8.2	8.3-8.9	9.0-12.8	12.9-14.1	>14.1
83	0-8.4	8.5-9.1	9.2-13.1	13.2-14.5	>14.5
84	0-8.5	8.6-9.3	9.4-13.4	13.5-14.8	>14.8
85	0-8.7	8.8-9.5	9.6-13.7	13.8-15.1	>15.1
86	0-8.9	9.0-9.7	9.8-14.0	14.1-15.4	>15.4
87	0-9.1	9.2-9.9	10.0-14.3	14.4-15.8	>15.8
88	0-9.3	9.4-10.1	10.2-14.6	14.7-16.1	>16.1
89	0-9.5	9.6-10.3	10.4-14.9	15.0-16.4	>16.4
90	0-9.7	9.8-10.5	10.6-15.2	15.3-16.8	>16.8
91	0-9.9	10.0-10.8	10.9-15.5	15.6-17.1	>17.1
92	0-10.1	10.2-11.0	11.1-15.8	15.9-17.4	>17.4
93	0-10.3	10.4-11.2	11.3-16.1	16.2-17.8	>17.8
94	0-10.5	10.6-11.4	11.5-16.4	16.5-18.1	>18.1
95	0-10.7	10.8-11.6	11.7-16.7	16.8-18.5	>18.5
96	0-10.8	10.9-11.8	11.9-17.0	17.1-18.8	>18.8
97	0-11.0	11.1-12.0	12.1-17.4	17.5-19.2	>19.2
98	0-11.2	11.3-12.2	12.3-17.7	17.8-19.5	>19.5
99	0-11.4	11.5-12.4	12.5-18.0	18.1-19.9	>19.9
100	0-11.6	11.7-12.7	12.8-18.4	18.5-20.3	>20.3
101	0-11.9	12.0-12.9	13.0-18.7	18.8-20.7	>20.7

Weight-for-length (children 0–23 months)

BOYS, 0–23 months, weight-for-length					
Length (cm)	SAM <-3	MAM ≥-3 to <-2	Normal ≥-2 to ≤+2	Overweight >+2 to ≤+3	Obesity >+3
	Weight (kg)				
45	0-1.8	1.9	2.0-3.0	3.1-3.3	>3.3
46	0-1.9	2.0-2.1	2.2-3.1	3.2-3.5	>3.5
47	0-2.0	2.1-2.2	2.3-3.3	3.4-3.7	>3.7
48	0-2.2	2.3-2.4	2.5-3.6	3.7-3.9	>3.9
49	0-2.3	2.4-2.5	2.6-3.8	3.9-4.2	>4.2
50	0-2.5	2.6-2.7	2.8-4.0	4.1-4.4	>4.4
51	0-2.6	2.7-2.9	3.0-4.2	4.3-4.7	>4.7
52	0-2.8	2.9-3.1	3.2-4.5	4.6-5.0	>5.0
53	0-3.0	3.1-3.3	3.4-4.8	4.9-5.3	>5.3
54	0-3.2	3.3-3.5	3.6-5.1	5.2-5.6	>5.6
55	0-3.5	3.6-3.7	3.8-5.4	5.5-6.0	>6.0
56	0-3.7	3.8-4.0	4.1-5.8	5.9-6.3	>6.3
57	0-3.9	4.0-4.2	4.3-6.1	6.2-6.7	>6.7
58	0-4.2	4.3-4.5	4.6-6.4	6.5-7.1	>7.1
59	0-4.4	4.5-4.7	4.8-6.8	6.9-7.4	>7.4
60	0-4.6	4.7-5.0	5.1-7.1	7.2-7.8	>7.8
61	0-4.8	4.9-5.2	5.3-7.4	7.5-8.1	>8.1
62	0-5.0	5.1-5.5	5.6-7.7	7.8-8.5	>8.5
63	0-5.2	5.3-5.7	5.8-8.0	8.1-8.8	>8.8
64	0-5.4	5.5-5.9	6.0-8.3	8.4-9.1	>9.1
65	0-5.6	5.7-6.1	6.2-8.6	8.7-9.4	>9.4
66	0-5.8	5.9-6.3	6.4-8.9	9.0-9.7	>9.7
67	0-6.0	6.1-6.5	6.6-9.2	9.3-10.0	>10.0
68	0-6.2	6.3-6.7	6.8-9.4	9.5-10.3	>10.3
69	0-6.4	6.5-6.9	7.0-9.7	9.8-10.6	>10.6
70	0-6.5	6.6-7.1	7.2-10.0	10.1-10.9	>10.9
71	0-6.7	6.8-7.3	7.4-10.2	10.3-11.2	>11.2
72	0-6.9	7.0-7.5	7.6-10.5	10.6-11.5	>11.5
73	0-7.1	7.2-7.6	7.7-10.8	10.9-11.8	>11.8
74	0-7.2	7.3-7.8	7.9-11.0	11.1-12.1	>12.1
75	0-7.4	7.5-8.0	8.1-11.3	11.4-12.3	>12.3
76	0-7.5	7.6-8.2	8.3-11.5	11.6-12.6	>12.6
77	0-7.7	7.8-8.3	8.4-11.7	11.8-12.8	>12.8
78	0-7.8	7.9-8.5	8.6-12.0	12.1-13.1	>13.1
79	0-8.0	8.1-8.6	8.7-12.2	12.3-13.3	>13.3
80	0-8.1	8.2-8.8	8.9-12.4	12.5-13.6	>13.6
81	0-8.3	8.4-9.0	9.1-12.6	12.7-13.8	>13.8

GIRLS, 0–23 months, weight-for-length					
Length (cm)	SAM <-3	MAM ≥-3 to <-2	Normal ≥-2 to ≤+2	Overweight >+2 to ≤+3	Obesity >+3
	Weight (kg)				
45	0-1.8	1.9-2.0	2.1-3.0	3.1-3.3	>3.3
46	0-1.9	2.0-2.1	2.2-3.2	3.3-3.5	>3.5
47	0-2.1	2.2-2.3	2.4-3.4	3.5-3.7	>3.7
48	0-2.2	2.3-2.4	2.5-3.6	3.7-4.0	>4.0
49	0-2.3	2.4-2.5	2.6-3.8	3.9-4.2	>4.2
50	0-2.5	2.6-2.7	2.8-4.0	4.1-4.5	>4.5
51	0-2.7	2.8-2.9	3.0-4.3	4.4-4.8	>4.8
52	0-2.8	2.9-3.1	3.2-4.6	4.7-5.1	>5.1
53	0-3.0	3.1-3.3	3.4-4.9	5.0-5.4	>5.4
54	0-3.2	3.3-3.5	3.6-5.2	5.3-5.7	>5.7
55	0-3.4	3.5-3.7	3.8-5.5	5.6-6.1	>6.1
56	0-3.6	3.7-3.9	4.0-5.8	5.9-6.4	>6.4
57	0-3.8	3.9-4.2	4.3-6.1	6.2-6.8	>6.8
58	0-4.0	4.1-4.4	4.5-6.5	6.6-7.1	>7.1
59	0-4.2	4.3-4.6	4.7-6.8	6.9-7.5	>7.5
60	0-4.4	4.5-4.8	4.9-7.1	7.2-7.8	>7.8
61	0-4.6	4.7-5.0	5.1-7.4	7.5-8.2	>8.2
62	0-4.8	4.9-5.2	5.3-7.7	7.8-8.5	>8.5
63	0-5.0	5.1-5.4	5.5-8.0	8.1-8.8	>8.8
64	0-5.2	5.3-5.6	5.7-8.3	8.4-9.1	>9.1
65	0-5.4	5.5-5.8	5.9-8.6	8.7-9.5	>9.5
66	0-5.6	5.6-6.0	6.1-8.8	8.9-9.8	>9.8
67	0-5.7	5.8-6.2	6.3-9.1	9.2-10.0	>10.0
68	0-5.9	6.0-6.4	6.5-9.4	9.5-10.3	>10.3
69	0-6.0	6.1-6.6	6.7-9.6	9.7-10.6	>10.6
70	0-6.2	6.3-6.8	6.9-9.9	10.0-10.9	>10.9
71	0-6.4	6.5-6.9	7.0-10.1	10.2-11.1	>11.1
72	0-6.5	6.6-7.1	7.2-10.3	10.4-11.4	>11.4
73	0-6.7	6.8-7.3	7.4-10.6	10.7-11.7	>11.7
74	0-6.8	6.9-7.4	7.5-10.8	10.9-11.9	>11.9
75	0-7.0	7.1-7.6	7.7-11.0	11.1-12.2	>12.2
76	0-7.1	7.2-7.7	7.8-11.2	11.3-12.4	>12.4
77	0-7.3	7.4-7.9	8.0-11.5	11.6-12.6	>12.6
78	0-7.4	7.5-8.1	8.2-11.7	11.8-12.9	>12.9
79	0-7.6	7.7-8.2	8.3-11.9	12.0-13.1	>13.1
80	0-7.7	7.8-8.4	8.5-12.1	12.2-13.4	>13.4
81	0-7.9	8.0-8.6	8.7-12.4	12.5-13.7	>13.7

- 3.8 Match the following macronutrients and their corresponding energy yields during metabolism (6 marks)

Macronutrient	Energy yield	
Organic acids (Fruit juices)		a. 9 Kcal/g
Alcohol		b. 1 Kcal/g
Polydextrose		c. 3 Kcal/g
Carbohydrates		d. 4 Kcal/g
Fat		e. 7 Kcal/g
Protein		f. 2 Kcal/g

SECTION C: (21 MARKS)

QUESTION 4 (21 MARKS)

Read the following case study carefully and answer the questions that follow

4.1 The family lives in a town: the grandmother, her daughter, a single mother, with her two schoolchildren. The mother works every day from 6:30 am to 3:30 pm, the grandmother in the evenings, both in minimum wage-jobs. Shared meals and cooking at home are rare, each family member cares for catching some food in a box on their way to school, work or back home. Mother and grandmother are obese with a few symptoms of the metabolic syndrome, but do not know as they cannot afford visits at the health center. The younger child is normal weight, the older overweight.

4.1.1 Name the nutrient(s) and typical foods related to the problem (2 marks)

4.1.2 Identify two other topics that influence the situation others than the intake of food respectively nutrients (2 marks)

4.1.3 What type of intervention – according the Nutrition Care Process - might ameliorate the health of those affected?

Sketch a few details of a project idea.

Give an insight into your decision making (5 marks)

- 4.2 Explain the difference between ethics and the law (4 marks)
- 4.3 What is public health ethics (2 marks)
- 4.4 Explain three (3) components of public health ethics (6 marks)

!!!!!!!!!!!!GOOD LUCK!!!!!!!!!!!!