



**NUT2601
SECOND PAPER**

May/June 2017

NUTRITIONAL CARE

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

SECOND

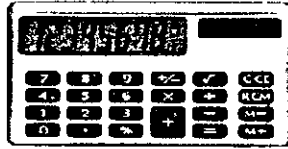
MISS B SWANEPOEL

MR F RAMASUNGA

Use of a non-programmable pocket calculator is permissible.

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue



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This examination question paper consists of six (6) pages

Answer ALL the questions in the answer book provided

Start **each question** on a **new page**, that is, QUESTION 1, QUESTION 2 and, QUESTION 3 should each start on a new page in the answer book provided

Where applicable, give all answers using the metric system or SI units. No marks will be awarded for answers with non-metric units of measurement

[TURN OVER]

QUESTION 1

[37]

- 1.1 The gastro-intestinal tract is designed in a specific way to enhance and maximise absorption of nutrients. Match the correct specialised anatomic feature/ mechanism of the absorptive system in column A with its specific function/action in column B. Write the correct letter next to the number in column A. (5)

Column A: anatomic feature/ mechanism	Column B: Function/ Action
1.1.1 Crypts	A Passive transport
1.1.2 Microvilli	B Assemble many of the products of fat digestion into large molecules
1.1.3 Simple diffusion	C Trap nutrient particles and transport them into the cells
1.1.4 Active diffusion	D Secretes intestinal juices into the small intestine
1.1.5 Intestinal cells	E Provides energy for the transport of molecules against concentration gradient

- 1.2 Explain the form in which protein is excreted and describe how these products are formed. (4)

You decide to interview one of your friends, Thandi to see whether you are able to apply the knowledge you have gained within this module. Explain the following concepts to Thandi:

- 1.3 Thandi is overweight and complains of food cravings and wants to know why this happens. Explain to her what factors override the hunger and satiety signals? (6)
- 1.4 Explain to Thandi how fat affects satiety. (1)
- 1.5 Explain how the body overcomes the problem of digestion and absorption of fat in terms of its hydrophobic characteristics in watery surroundings in the GIT. (3)
- 1.6 Differentiate between pancreatic and salivary amylase. (3)
- 1.7 Describe the process in detail of digestion of 1 cup of cooked oats porridge with respect to digestion in the **stomach** and **large intestine** focusing on the digestive enzymes and secretions involved and the products of digestion that is formed. (5)
- 1.8 The large intestine forms the final stage of the digestive process. Explain what happens to the food in the large intestine including the bacterial function that occurs. (4)

[TURN OVER]

1 9 Indicate whether the following statements relating to metabolism are true or false. For each answer of 'false', explain why the statement is incorrect. (6)

1 9 1 Growing infants, children and adolescents, pregnant women, people recovering from a protein deficiency or illness are known to have a negative nitrogen balance

1 9 2 Ketosis may cause nausea, light headedness, fatigue and even worsen existing medical problems such as kidney disease

1 9 3 During protein breakdown, amino acids are freed and they mix with the amino acids from dietary protein and form an amino acid pool, which stays fairly constant in the cells and the circulating blood

1 9 4 No further digestion takes place in the large intestine, therefore nothing is absorbed in the large intestine

QUESTION 2

[34]

Mrs Hlabisa is a single mother with 4 children. She works full-time and is responsible for the preparing and buying of food in her house. She is more concerned with the children than her own food intake and health, but she has recently been diagnosed with diabetes mellitus and therefore needs to start making changes to the way in which she eats. Mrs Hlabisa is 48 years old, her weight is 94kg and her height is 1 69m.

The following is a summary of Mrs Hlabisa's eating patterns.

Breakfast Mostly, Mrs Hlabisa skips breakfast because she is so busy getting the children ready for school and making breakfast and lunch for her 4 children.

At about 10 00 on most mornings, during her work tea time, Mrs Hlabisa has **4 pieces of white bread with margarine and jam**, and **drinks coffee with 3 teaspoons of sugar and milk**, because by then she is very hungry.

Mrs Hlabisa **sometimes takes an apple** to work and eats that later on but mostly drinks coffee and has some **biscuits** with her coffee throughout the day when she is hungry.

Supper: In the evenings, Mrs Hlabisa either makes a **meat or chicken stew** (sometimes with vegetables) with **rice or maize meal**, or **pasta with a tomato sauce** or **chops baked in the oven with chips**.

2 1 Use the following two food-based dietary guidelines to explain the difference between the various types of carbohydrates that can be found in food, and explain to Mrs Hlabisa what changes you would recommend to her eating patterns that would be better to manage her blood glucose levels. "Make starchy food part of most meals" and "Use sugar and food and drinks high in sugar sparingly"

(8)

[TURN OVER]

- 2 2 Explain to Mrs Hlabisa why it would be beneficial for her health to include more fibre in her diet and provide some suggestions to her current eating pattern on how she could increase her fibre intake (6)
- 2 3 Mrs Hlabisa is not consuming many legumes Describe the food-based dietary guideline that mentions legumes and explain to Mrs Hlabisa the benefits in terms of the management of diabetes mellitus, of including dried beans and soy foods into her diet (4)
- 2 4 Mrs Hlabisa asks you about what types of fat she can eat because she has heard lately that there is a diet where you can eat any type of fat that you like and they say it is good for people with diabetes Using the food-based dietary guideline that mentions fat, firstly name the guideline that has to do with fat, secondly, explain to Mrs Hlabisa what you would recommend with regard to fat intake and thirdly, provide an explanation of the different types of dietary fat Lastly, also explain to Mrs Hlabisa at least four functions of fat in the body (10)
- 2 5 You are teaching Mrs Hlabisa about the 'exchange system' as a way to manage her intake and she has been following your recommendations At lunch time Mrs Hlabisa is having a whole-wheat roll with margarine, cold ham, salad and a glass of milk Complete the following table in order to determine the macronutrient and energy content of what she is consuming Make sure re-draw this table and to fill in the grey blocks 12 X ½ (6)

Food	Size	Exchanges	CHO (g)	Prot (g)	Fat (g)	Energy (kJ)
1 whole wheat bread roll	60g	2			-	
margarine	5g		-	-	5	
Cold ham	30g	1		7	3	
Mixed salad	1 cup			2	-	
Full cream milk	125ml		6	4		320

QUESTION 3**[29]**

Mr Maponya is a 40 year old male, with a weight of 106 kg, a height of 1.82 m and a waist circumference of 135 cm

- 3 1 Calculate and interpret his body mass index (3)
- 3 2 Interpret Mr Maponya's waist circumference measurement (1)

[TURN OVER]

Mr Maponya tells that you that he needs to lose 10kg in the next month, because he is seeing his mother in one month's time and she is always telling him that she is concerned about his weight and his health

- 3 3 Calculate the percentage weight loss that would result from Mr Maponya losing 10kg. Describe whether the percentage weight loss would be appropriate for one month (3)
- 3 4 Calculate a realistic weight loss goal for one month for Mr Maponya and provide him with an explanation for the weight loss goal that you have calculated (3)

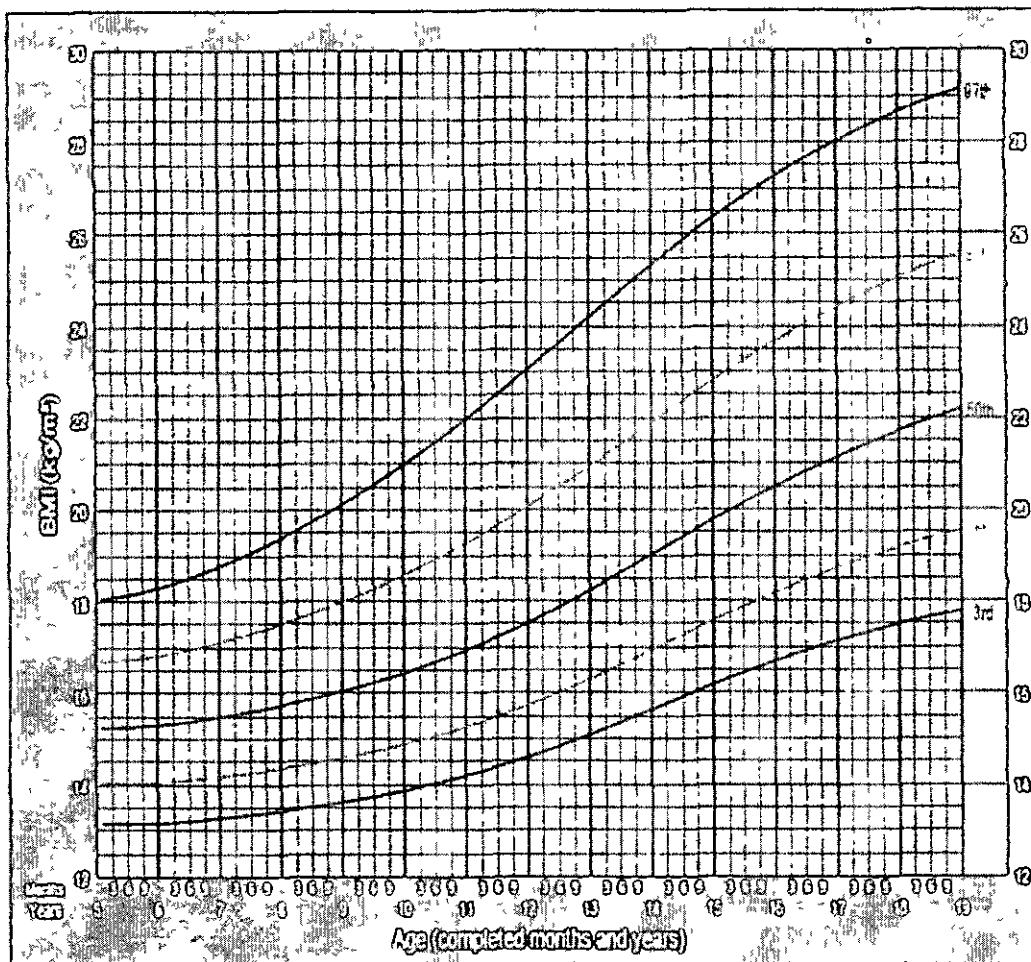
You take a diet history from Mr Maponya and this shows that his diet is currently providing 9195kJ and is made up of 375g carbohydrates, 72g protein and 42g fat.

- 3 5 Calculate the energy distribution of Mr Maponya's diet and show all calculations (6)
- 3 6 Based on your answer from question 3 5, interpret the macronutrient distribution by comparing each nutrient's energy distribution to the Acceptable Macronutrient Distribution Ranges (AMDR) and then make recommendations to Mr Maponya accordingly (6)
- 3 7 The Dietary Reference Intakes (DRIs) contain four reference values. Write out the abbreviation of and explain to Mr Maponya the difference between the following two DRIs: **EAR** and the **AI** (4)
- 3 8 Siphiso is Mr Maponya's 8-year-old son who weighs 40 kg and is 1.55 m tall. Calculate and interpret his BMI using the WHO growth chart provided (on next page) (3)

BMI-for-age BOYS



5 to 19 years (percentiles)



TOTAL MARKS: 100

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