

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH AND ENVIRONMENTAL SCIENCES
DIETETICS & HUMAN NUTRITION
EXAMINATION: NOVEMBER 2015
SUBJECT, COURSE & CODE: DIET 237 P2
WEIGHT, DIABETES, HEART DISEASE

Internal Examiner: Mrs S Ogilvie
External Examiner: Dr N Wiles

DURATION: 3 HOURS

TOTAL MARKS: 150

NOTE: THIS PAPER CONSISTS OF SIX (6) PAGES AND APPENDIX A - TWO (2) PAGES AND APPENDIX B - ONE (1) PAGE.
PLEASE CHECK THAT YOU HAVE THEM ALL.
PLEASE WRITE LEGIBLY AND ANSWER ALL QUESTIONS.
ANSWERS WRITTEN IN PENCIL WILL NOT BE MARKED.

QUESTION 1

Letitia, a preprimary school teacher who is pregnant is concerned as the gynaecologist has just told her that her blood glucose levels at 25 weeks are elevated. She had a still birth 2 years ago. She has already gained 18 kg and now weighs 102 kg and is 167 cm tall and is 35 years old. She does not enjoy exercise and has not been eating healthily. Her mother has Type 2 diabetes. She has been treated for high blood pressure and candida during her pregnancy. Because of her history she has been referred to you for dietary advice to help ensure a healthy outcome for her and the baby.

- 1.1 Why would the gynaecologist check her blood glucose levels at 25 weeks? (2)
- 1.2 What risk factors for gestational diabetes does she have? (7)
- 1.3 When should women at high risk be tested and what tests should be done? (3)
- 1.4 What test results would indicate GDM? (2)
- 1.5 Explain the difference between pregestational diabetes and gestational diabetes. (3)
- 1.6 What is considered the cause of GDM? (3)

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- 1.7 What complications can high blood glucose levels during pregnancy cause? (3)
- 1.8 Explain why these high blood glucose levels cause a problem in the foetus. (7)
- 1.9 What information should you include when taking the history for someone with pregestational diabetes? (7)
- 1.10 List the laboratory tests that should be done for pregestational diabetes. (3)
- 1.11 Calculate and classify her pre-pregnancy BMI and classify. (2)
- 1.12 She tells you that her own birth weight was classed as small for gestational age and is surprised that she now has a weight problem. Discuss the “Barker Hypothesis” with her. (8)

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QUESTION 2

Jake, a 37 year old financial advisor was diagnosed with Type 1 diabetes at the age of 22 years. Initially he was on Humulin and Protaphane but has recently been changed to Apidra and Lantus. The last year he has not been controlling his blood sugars and the most recent HbA1c was 12.5 %. Three months ago he injured his foot on rocks at the beach and neglected to take care of the injury which went septic. He ended up in hospital having a below knee amputation of the right foot. He has recently been discharged from hospital and is mobile using crutches to walk. He has asked you for help in getting his eating plan sorted out and improving his glycaemic control.

You obtain the following information:-

Height	187 cm
Weight, current	83 kg
Blood glucose, post prandial	13.6 mmol/l
HbA1c	12.5 %

From his diet history a typical day's food intake is as follows:

Breakfast	1 cup muesli ½ cup low fat milk 2 Tbs raisins 1 tsp sugar
10 am	1 can Coke zero
Lunch	90 g cooked chicken breast (no skin) 3 slices low GI bread 3 tsp regular margarine 4 tsp regular mayonnaise 1 cup lettuce, tomato & cucumber salad 1 small banana Water
3 pm	Coffee + 50 ml low fat milk
Supper	150 g rump steak, grilled 160 g baked potato 1 cup baked butternut ½ cup boiled green beans 2 tsp regular margarine for potato
10 pm	1 slice low GI bread 1 tsp regular margarine 1 Tbs jam 1 cup Milo (4 tsp Milo powder, hot water + 75 ml low fat milk)

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- 2.1 Calculate his BMI and classify. (2)
- 2.2 Work out his IBW. (2)
- 2.3 What percent overweight is he? (1)
- 2.4 Calculate his current energy and macronutrient requirements using the Schofield equation and a suitable activity factor. (5)
- 2.5 Analyse his diet history using exchanges.
Fill your answer in on the table Appendix A1. (9)
- 2.6 Explain the difference in action between the insulin regime he started on and what he is now on. Do not include onset, peak and duration of action. (4)
- 2.7 As his blood glucose levels are erratic explain to him in detail the correct injection technique. (15)
- 2.8 He asks you to explain in detail what incretins are as he has never heard of them, and how they work. List the two categories of incretin drugs, giving one drug name for each category. Do not give side effects. (12)

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QUESTION 3

Thando, a 28-year-old housewife has been suffering from depression since the death of her baby 3 years ago. She constantly binge eats on refined carbohydrates, including white bread, chocolate, biscuits, fast food and Coke. She has gained 48 kg in the last 3 years and often feels tired, nauseous and dizzy. Her husband is very concerned about her health and persuades her to consult a doctor. The doctor did a number of blood tests and diagnosed her with a fatty liver and metabolic syndrome. She does not smoke or drink alcohol and does very little exercise. She has been referred to you for dietary treatment.

During your interview with her you gather the following information:

Height	168 cm
Weight, current	125 kg
Waist circumference	132 cm
Blood pressure	150/110 mmHg
Total cholesterol	9.8 mmol/l
LDL	5.5 mmol/l
HDL	0.7 mmol/l
Triglycerides	6.2 mmol/l

- 3.1 She is very upset when the doctor tells her that she has metabolic syndrome and that her fatty liver is due to excess alcohol intake. Explain to her what metabolic syndrome is and why the doctor has diagnosed this. Do you agree with the doctor's explanation for her fatty liver? (8)
- 3.2 List two different methods of measuring body fat. (2)
- 3.3 What medication do you feel her doctor should start her on in order to lower her cholesterol? Explain to her how the medication works including possible side effects. (9)
- 3.4 What dietary recommendations would you make to lower triglyceride levels? (4)
- 3.5 List the 5 groups of lipoproteins. (5)
- 3.6 Name the 5 classes of anti-hypertensive drugs. (5)

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- 3.7 What blood pressure reading is considered normal? (1)
- 3.8 Considering her blood pressure readings are there any dietary changes you would recommend? (8)
- 3.9 She asks if you can include a few of her favourite foods into her diet. The items she wants included are Royco creamy cheddar tuna and Woolworths beef and lentil soup. She adds 60 g tuna to the creamy cheddar tuna when she prepares it. Convert the following information into exchanges and explain how she can fit them into her meal plan.

Fill your answer in the table Appendix A2. (8)

Beef and lentil soup

Nutritional information	Per serving
Energy	1104 kJ
Protein	18g
Carbohydrates	29.6g
Total fat	5.8g

Creamy cheddar tuna

Nutritional information	Per serving
Energy	1103 kJ
Protein	7.6g
Carbohydrates	48g
Total fat	4.2g

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