

**UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DIETETICS AND HUMAN NUTRITION
SUPPLEMENTARY EXAMINATION: NOVEMBER 2013
SUBJECT, COURSE, CODE: DIET 711 PY
THERAPEUTIC DIETETICS INTERNSHIP**

DURATION: 3 HOURS

TOTAL MARKS: 150

**External Examiner: Ms J. Visser
Internal Examiner: Mrs J. Galliers, Mrs S. Kassier**

NOTE: THIS PAPER CONSISTS OF EIGHT (8) PAGES, PLUS ELEVEN (11) REFERENCE PAGES (ON YELLOW PAPER) AND APPENDIX I, II, III, IV, V AND VI FOR CALCULATIONS (ON GREEN PAPER). PLEASE SEE THAT YOU HAVE THEM ALL.

INSTRUCTIONS:

- **Answer three (3) of the four (4) questions.**
- **Write your student number on all answer books as well as Appendix I, II, III, IV, V or VI (extra copies have been included in case you make a mistake)**
- **Do not write in pencil- it will not be marked.**
- **Answer each question in a separate answer booklet and leave enough space open so that you can answer questions in their correct sequence i.e. 4.1 followed by 4.2 etc.**
- **Write legibly- if it cannot be read it will not be marked.**

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QUESTION 1

Mrs Khumalo is a 55 year old lady admitted to the medical ward with uncontrolled diabetes and hypertension. She was previously on Metformin but has now been changed to an insulin regime of NovaRapid before meals and Protaphane at night before going to bed. She is also taking Enalapril.

Her anthropometrics and biochemistry on admission are as follows:

Weight	90kg
Height	1.65m
Waist circumference	90cm
Blood pressure	140/90
HbA1c	12%
Glucose	25mmol/l
Total cholesterol	8mmol/l
HDL	0.8mmol/l
LDL	5mmol/l
Triglycerides	1.8mmol/l

- 1.1 Describe the difference between Type 1 and Type 2 Diabetes mellitus by referring to physiological as well as environmental causes in your answer. (10)
- 1.2 What kind of insulin regime has Mrs Khumalo been started on? Describe it. (4)
- 1.3 Please copy the following table into your notebook and include the following information on NovoRapid and Protaphane in terms of type of insulin, onset, peak, duration and how they would be taken in accordance with meals. (10)

INSULIN	NOVORAPID	PROTAPHANE
Type		
Onset		
Peak		
Duration		
How to take		

- 1.4 Calculate a dietary prescription for Mrs Khumalo using Appendix I. (18)
- 1.5 Two months later Mrs Khumalo is re-admitted to the medical ward. Her family reports she is unable to speak, she cannot move properly and she is not eating. From the medical notes you see she has dysphagia, right hemiparesis and a GCS of 6/15.

 What is the cause of Mrs Khumalo's symptoms? (1)
- 1.6 Define dysphagia and hemiparesis (2)

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- 1.7 A NGT is inserted for feeding Mrs Khumalo. Using your dietary prescription from Annexure 4, plan an appropriate feed and indicate the optimum feeding rate on the Annexure 4. Justify your answer. (5)

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QUESTION 2

Baby D is a 1 month old girl admitted to the paediatric ward on 12/04/2013 with chronic reflux and diarrhoea. Her mom decided not to breastfeed and has been using Nan 1 since Baby D's birth. Baby D is RVD unexposed. She has been rehydrated with IV fluids, and after several tests has been diagnosed with a cow's milk allergy. The doctor has inserted a nasogastric tube for feeding, and she is now referred to you for dietary intervention.

Birth weight: 3.4kg

Head circumference: 36.4cm

Current weight: 3.8kg

Length: 55cm

2.1.1 Name two laboratory tests that can diagnose food allergies. (2)

2.1.2 Calculate Baby D's requirements using Appendix II, including an appropriate feed prescription (20)

2.1.2 Name 1 property of the feed you have chosen that makes it suitable for a cow's milk allergy? (1)

2.1.3 The following day the Sister in charge reports that Baby D experienced aspiration when the NGT feed started.

Define the term "aspiration" and give reasons for its occurrence. (3)

2.2 Mrs Payne has been newly diagnosed with Chronic Renal failure (CRF). She is not a candidate for dialysis and requires dietary intervention. She advises you on her first appointment that the doctor told her to avoid all meat, chicken, fish, milk, and to never look at another banana again.

Weight: 72kg

Height: 1.65m

Urine output: 250ml

2.2.1 Calculate only her energy, macronutrient and fluid requirements on Appendix III (10)

2.2.2 What dietary advice would you offer her for conservative management in the following focus areas? (14)

➤ Food preparation (3)

➤ Fluid intake (6 x ½= 3)

➤ Control of phosphorous intake (3)

➤ Control of potassium intake (3)

➤ Control of protein intake (2)

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QUESTION 3

Mr Singh is a 67 year old man admitted with a duodenal ulcer, caused by *H. pylori* infection. As a result, he was operated on and is now day 3 post Bilroth 2 procedure. You are requested to assess the patient and begin feeding. Mr Singh is bed bound due to pain, but is still able to give you a diet history. On reading his notes you find the following information:

Weight: 65kg

Height: 1.64m

Glucose (mmol/l)	Potassium (mmol/l)	Urea (mmol/l)	Creatinine (mmol/l)	Albumin
4.8	4.3	5	89	25
Iron (µmol/l)	Calcium (mmol/l)	Magnesium (mmol/l)	Bicarbonate (mmol/l)	Vitamin B12 (µmol/l)
8	1.2	0.35	26	0.000082 (LOW)

24 hour recall:

Breakfast	2 cups high fibre bran cereal + 2 slices toast + margarine + peanut butter. 1 mug of coffee + 3 teaspoons sugar + low fat milk
Lunch	1 large bowl of curried chicken + vegetables + rice + 4 slices of white bread + margarine 500ml coca cola
Dinner	Beef stew with onions + mixed vegetables + 3 heaped serving spoons of mash + 2 slices of white bread + margarine. 1 large glass of milk
Snack	1 bowl of ice cream + chocolate sauce

- 3.1.1 Interpret and give reasons for Mr Singh's biochemical results. (6)
- 3.1.2 Using Appendix IV Calculate Mr Singh's nutritional requirements indicating energy, protein, carbohydrate and fat. Include his IBW. (9)
- 3.1.3 Post operatively Mr Singh has been allowed to suck on ice, and take a few sips of water. What type of diet would you start him on, and how would you progress? (2)
- 3.1.4 Mr Singh is discharged a few days later, but at his one month follow up appointment he complains of tachycardia, sweating, weakness and diarrhoea 15 minutes after eating. Explain to Mr Singh what he is experiencing and why it occurs (4)
- 3.1.5 Considering Mr Singh's initial diet history from his hospital admission, what advice can you give him to prevent the above symptoms from occurring? (5)

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3.2 Mrs Kruger is a 48 year old teacher who visited her GP complaining of fatigue, and generally not feeling well. Her doctor ordered a variety of blood tests, the results of which are shown below. She was diagnosed with hypothyroidism, hypercholesterolemia and hypertriglyceridemia. Her Doctor has prescribed Synthroid for the hypothyroidism, and referred Mrs Kruger to you for dietary advice regarding the hypercholesterolemia and hypertriglyceridemia.

Weight: 52kg

Height: 1.54m

Waist circumference: 83cm

Blood result A

Reference range	0.39-1.48
Patient's value	2.5

Blood result B

Reference range	<4.0
Patient's value	4.2

Blood result C

Reference range	>1
Patient's value	1.6

Blood result D

Reference range	3.89-6.48
Patient's value	7

3.2.1 Interpret Mrs Kruger's anthropometric measurements (3)

3.2.2 Some of the blood results tested include Total Cholesterol, HDL Cholesterol, LDL Cholesterol and Triglycerides. Match up Blood results A, B, C, and D to these four blood results. (8)

Blood result A

Blood result B

Blood result C

Blood result D

3.2.3 List four (4) ways, giving examples, of how Mrs Kruger can improve her cholesterol level. (8)

3.2.4 How long does it take before dietary changes have an effect on cholesterol levels? (1)

3.2.5 Why is LDL cholesterol known as "bad" cholesterol? (2)

3.2.6 Why is HDL cholesterol known as "good" cholesterol, and how can its levels be increased? (2)

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QUESTION 4

- 4.1 Miss Green is 40 years old and has been admitted to the surgical ward with an enterocutaneous fistula as a result of Crohn's Disease. The fistula output is 800ml. She has not eaten a full meal in over a week, and the surgeons are unable to operate on her immediately due to a full theatre slate. Whilst she is waiting to go to theatre the surgeons ask you to assess Miss Green and devise a nutrition plan for pre- and post- operatively. Miss Green informs you that she has suffered from Crohn's Disease for 16 years, and has had four previous hospital admissions where small sections of the colon have been removed.

Weight: 48kg Height: 1.58m MUAC: 21.5cm

- 4.1.1 Comment on her anthropometric status (3)
- 4.1.2 How will you feed Miss Green before the operation, and why? (2)
- 4.1.3 Miss Green undergoes a successful operation with a small ileal resection of 4cm, and fistula closure. Using Appendix V calculate her nutritional requirements post operation. (8)
- 4.1.4 What type of enteral feed would you start her on post operation, and give an example. (2)
- 4.1.5 What dietary advice can you give her on discharge to help prevent acute attacks? (10)

- 4.2 Mr Leon is a 58 year old male presenting with an enlarged abdomen and dyspepsia. On investigation he is diagnosed with decompensated liver cirrhosis and the doctor requests you prescribe an appropriate diet, and counsel him.

In the ward you perform an anthropometric, biochemical, clinical and dietary assessment and find the following:

Weight: 52kg Height: 1.68m

ALP (U/l)	ALT (U/l)	GGT (U/l)	Bilirubin (umol/l)	Albumin (g/l)	Cholesterol (mmol/l)
135	50	43	28	20	6.8

Mr Leon has moderate ascites. Whilst you are assessing him he complains of tingling in his extremities and poor night vision.

- 4.2.1 You phone the consultant to recommend branched chain amino acid supplementation for Mr Leon. Explain to him why BCAA supplementation would benefit this patient. (4)

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- 4.2.2 The consultant requests a low protein diet. Do you agree? Explain, by first calculating his requirements using Appendix VI. (11)
- 4.2.3 Why is Mr Leon's albumin low? (1)
- 4.2.4 Which two (2) micronutrients are responsible for the clinical symptoms described? (4)
- 4.2.5 Name two (2) complications of liver cirrhosis. (2)
- 4.2.6 Mr Leon is discharged, but readmitted a week later with signs of confusion and incoherent speech. Identify his condition. (1)
- 4.2.7 Explain this condition (2)

TOTAL: 50 MARKS