

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH AND ENVIRONMENTAL SCIENCES
DISCIPLINE OF DIETETICS & HUMAN NUTRITION
EXAMINATION: JUNE 2015
SUBJECT, COURSE AND CODE: DIET 350 P1

DIET 2: DIET THERAPY – MEDICAL

DURATION: 3 HOURS

TOTAL MARKS: 100

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Internal Examiner: Mrs Jo Galliers and Mrs Sue Ogilvie

**NOTE THIS PAPER CONSISTS OF TWENTY ONE (21) PAGES AND A FOURTEEN (14) PAGE FORMULA
HANDOUT.**
PLEASE CHECK THAT YOU HAVE THEM ALL.

PENCIL MAY BE USED TO FILL IN THE MEAL PLANS.

ANSWER 2 OUT OF 3 QUESTIONS

STUDENT NUMBER: _____

QUESTION 1

- 1.1 Mrs January is a white 46 year old legal secretary. She has recently consulted her doctor as for the last three months she has been feeling very tired, has no appetite, has a fever and the glands in her neck are enlarged. She is able to cope with her sedentary job but has had to stop gym. On weighing her, the doctor notes that she has lost 11 kg since her last consultation four months ago, when she weighed 64 kg. He discovers that her lymph nodes in her neck as well as those in her groin and armpits are enlarged. He sends her for blood tests and a lymph node biopsy. The biopsy results show she has non-Hodgkin lymphoma. He refers her to an oncologist who starts her on chemotherapy. She is referred to you for a nutritional assessment as she is still losing weight and her albumin levels are 19 g/l. You get the following additional information:-

Height	172 cm
Weight	53 kg
MUAC	26.5 cm
TST	16.5 mm

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1.1.1 Using the anthropometric information you have fully assess her nutritional status. (7)

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1.1.2 The oncologist is concerned about her albumin levels. Interpret her albumin levels. Is the oncologist concerned because this means her nutritional status is very poor, or are there other consequences? (5)

1.1.3 Discuss how metabolic stress affects albumin levels. (4)

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1.1.4 Do you agree with the oncologist when he tells you she is experiencing cancer cachexia?
Explain your answer. (2)

1.1.5 Mrs January is very confused as to how chemotherapy will help her. Explain to her how
chemotherapy works. (5)

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1.1.6 Her blood tests after her third session of chemotherapy are: - potassium 6.1 mmol/l, phosphate 1.83 mmol/l and uric acid 0.73 mmol/l. Discuss the significance of these results. (2)

1.2 Mrs January has just started on a new cycle of chemotherapy using Taxol. After her second treatment with Taxol she has developed mucositis and has sores in her mouth. Draw up a suitable light diet with a one day meal plan for her, using the exchanges below. (Can be for any race group) **PENCIL IS ALLOWED.** (25)

Exchanges	Number
Milk	1
Meat	5
Starch/bread	7
Fruit	3
Vegetables	2
Fat	6

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TOTAL: 50 MARKS

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QUESTION 2

2.1 Mrs Dube is a previously healthy 73 year old lady who lives with her sickly husband in an old age home. On your weekly visit to the old age home to review your patients, the Sister in charge advises you that Mrs Dube had a stroke 3 nights ago, and is experiencing difficulty in eating her meals, and drinking her tea. She would like you to assess Mrs Dube and advise on an appropriate diet for her.

Mrs Dube's weight is 75kg, and her height is 1.63m.

2.1.1 You are aware that dysphagia is a common complication of stroke. You go to the dining hall where Mrs Dube is having sausages and phutu for lunch. List the symptoms of dysphagia you need to look out for. (18x½= 9)

2.1.2 Upon observing Mrs Dube being fed, you realise she has dysphagia, and cannot cope with a normal meal. Who would you refer Mrs Dube to, for an assessment of her ability to swallow? (1)

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2.1.3 You return to the old age home a few days later, and see that your colleague has recommended Mrs Dube be given stage one foods, as she is at risk of aspiration.

List 5 different food types that are considered stage one, and appropriate for a person suffering from dysphagia. (5)

2.1.4 Name a commercial product that is used to thicken liquids.

(1)

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2.1.5 A puree diet is ordered for Mrs Dube, but on subsequent visits you realise she is managing less than half of her meals. She has lost 5kg in 3 weeks, and you are concerned she is at risk of malnutrition. You would like to feed her enterally, as her feeding difficulties are a long term problem. Which route would you chose to feed her? (1)

2.1.6 Calculate Mrs Dube's energy and macronutrient requirements. Her only complication is a stroke, and reduced mobility (she is in a wheelchair, and can only move the right side of her body). (7)

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2.1.7 You plan on meeting Mrs Dube's full nutritional requirements enterally, and anything she manages to eat is a bonus. You plan 1.6 L of enteral feed.

Based on her nutritional requirements, and the enteral feeds table below, choose a suitable feed for Mrs Dube. Give the name of the feed you would prescribe. (1)

Feed	Volume	Energy (kJ)	Protein (g)	Carbohydrate (g)	Fat (g)
Intestamin	500ml	1045	30g glutamine		
Fresubin Original	1000ml	4180	37	135	33
Fresubin Original Fibre	1000ml	4180	37	128	33
Fresubin 1200	1000ml	5016	59	139	40
Fresubin HP Energy	500ml	3135	37.5	83	29
Peptamen RTH	500ml	2090	20	64	19.5
Peptamen RTH HN	500ml	2795	33	78	24.5
Survimed	500ml	2090	22	70	14

2.2 As you are leaving the old age home you receive a phone call from the hospital you cover, requesting you urgently come review one of their paediatric ICU patients currently receiving enteral feeds via a nasogastric tube.

When you arrive in the paediatric ICU you are told by the Sister- in- charge that Toddler Pillay has had profuse diarrhoea in the night, and you need to change the enteral feeds. Toddler Pillay was admitted to hospital with a viral infection 1 week ago, and his condition has rapidly declined. He is now septic. He is receiving Peptamen Junior @ 40ml/hr.

He is 3 years 1 month old, and weighs 15kg.

2.2.1 Do you think the feed might be the cause of the diarrhoea? (1)

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2.2.2 List the feeding induced causes of diarrhoea.

(10x½= 5)

2.2.3 The doctors inform you Toddler Pillay has multi organ failure, and they want to give him parenteral nutrition peripherally. Do you agree with giving parenteral nutrition via this route? Explain. (3)

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2.2.4 Aware of your extensive knowledge on parenteral nutrition, the doctor asks you which type of fat is better for Toddler Pillay, considering his condition. Explain the different types of lipid emulsions for parenteral nutrition, and motivate which one you think is better. (9)

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2.2.5 The day after parenteral nutrition is commenced, the Sr-in-charge informs you Toddler Pillay's glucose levels are very high, and you need to reduce the volume of parenteral nutrition you are giving him.
Knowing that the maximal glucose oxidation rate for toddlers is 5-7mg/kg/minute, and you are providing him with 120g glucose in the parenteral nutrition bag, are you giving him too much carbohydrate, and causing the hyperglycaemia? (2)

2.2.6 After 4 weeks on parenteral nutrition Toddler Pillay has started to improve, and his sepsis has resolved. He manages to open his eyes and talk to his parents. On one of your ward rounds his concerned mother informs you that his eyes and skin have a yellow tinge, and you notice his Liver function tests (LFT's) are raised. Why do you think his LFT's are raised, and list 5 factors that have been suggested to cause this phenomenon? (5)

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QUESTION 3

3.1 Anna is a 1 year, 5 month old girl. Both her parents are lawyers, and as a result work very long hours- they often get home after 8pm, when Anna has already been bathed, and is asleep in bed. Upon arrival home they regularly find a note from Anna's carer saying that Anna had an upset stomach that day, and cried a lot.

As her parents live such busy lifestyles and spend very little time with Anna, they decide to book a holiday at the beach with just themselves and Anna. It is only whilst on holiday that they are shocked to realise that Anna is actually really thin and bony in a swimming costume, and she does not have a good appetite at all. She seems disinterested in playing on the beach, regularly cries and complains of a sore stomach after nibbling on some food, and has up to 5 loose stools a day. Anna's mom thinks her symptoms are related to food, as Anna's father is allergic to milk, and experiences similar symptoms when exposed to milk. She takes Anna straight to the doctor on Monday morning to investigate what is wrong with their daughter.

After a thorough assessment, the doctor advises Anna's mom that Anna has failure to thrive, which he believes is due to a food allergy. He orders tests to confirm this.

Anna's mother is horrified that both her and her husband, as well as the carer, have not picked this up earlier and feels great shame at their neglect of Anna. She cannot even give the doctor a diet history, as Anna's carer is responsible for feeding Anna, and the mother has no idea what she gives Anna. She promises to ask the carer to write a diet history down, and fax it through to the doctor.

Anna's anthropometrics are below:

Weight	7 kg
Length	75 cm
MUAC	13 cm
TST	7 mm
MAMC	11 cm

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3.1.1 Using the growth charts available, complete the table below, and interpret Anna's nutritional status. (16)

Parameter	Z score	Interpretation
Weight (kg)		
Weight age		
% Expected weight for age		Welcome Classification:-
Height (cm)		
Height age		
% expected height for age		Waterlow classification:-
BMI		
Expected BMI for age		
IBW		
TST (mm)		
MUAC (cm)		
MAMC (cm)		

Interpretation:

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3.1.2 Name the diagnostic laboratory test for food allergies.

(1)

3.1.3 Another useful diagnostic tool is restriction and a food challenge. What does this involve? (11)

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3.1.4 Anna's tests results come back positive for an allergy to milk and wheat. Anna is referred to you for dietary intervention and advice. Her mother brings her diet history to the appointment with you (see below).

Modify this diet specifically for what Anna is allergic to (minus marking will occur for unnecessary changes made. If you are unsure, rather leave it blank). Make the minimum amount of changes. Either fill in "no changes" next to the food, or else write a substitute for each food that needs to be changed. The substitute needs to be as similar to the exchanged food as possible.

(15)

Breakfast	
Coco Pops, small bowl	
Milk	
2 teaspoons sugar	
Rooibos tea	
Milk	
Snack	
Ceres juice (any flavour)	
Yoghurt	
Lunch	
Fish fingers x 2	
Bread, 1 slice	
Margarine	
Cherry tomatoes x 3 and Cucumber slices x 4	
Snack	
Bread, 1 slice	
Melrose cheese triangle x 1	
Dinner	
Mince meat	
(Made with gravy powder, tinned tomatoes)	
Spaghetti	

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Carrots and peas	
Snack	
Banana	
Glass of milk	

3.1.5 In addition to modifying Anna's diet, what other aspects of Anna's diet do you need to cover in the counselling session? (2)

3.1.6 Anna's mom asks you whether Anna is likely to outgrow these allergies. What do you advise her? (2)

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- 3.1.7 Anna's carer enjoys baking biscuits for the family, and Anna's mom is concerned Anna won't be able to eat these. List 6 alternative flours that the carer can use instead of cake flour in the recipe. (6 x ½ = 3)