

**UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DIETETICS AND HUMAN NUTRITION
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 NINE (9) PAGES, PLUS TWELVE (12) REFERENCE PAGES (ON YELLOW PAPER) AND APPENDIX I, II AND III 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 or III (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

Vusi is a 22 year old University student whom you come across in ICU on your morning ward round. He presented to the Accident and Emergency unit in the early hours of the morning complaining of unbearable abdominal pain. The surgeons did a laparotomy and discovered his appendix had burst and there was faecal contamination throughout his bowel. His bowel was washed out, and a naso- gastric tube was inserted for drainage. A naso-jejunal tube was also inserted for feeding.

He is currently NPO, and on FMO₂.

His vital signs are as follows:

BP: 65/40mmHg Heart rate: 118 beats per minute Temperature: 38.1°C

Weight: 88kg

Blood results:

	Na (mmol/l)	K (mmol/l)	Cl (mmol/l)	U (mmol/l)	Cr (µmol/l)	Ca (mmol/l)	Mg (mmol/l)	P (mmol/l)	Alb (g/l)	CRP (mg/dl)	WBC (10 ⁹ /l)
4/11/13	138	3.3	96	6.9	122	1.96	0.81	0.71	18	17	22

NG tube= 960ml drainage

Medication: Adrenaline, Dobutrex, Dopamine, Morphine

- 1.1 The intern doctor tells you they will probably start enteral feeds that morning, as he is aware that early feeding is beneficial. What is your opinion on starting enteral feeding in this patient? Justify your answer. (4)
- 1.2 After the ward round the consultant advises that Vusi is septic, and TPN is required. When is TPN preferable to enteral feeding? (3)
- 1.3 The nursing staff ask you to give them a talk on the advantages and disadvantages of enteral versus parenteral nutrition. Tabulate the main points of your presentation. (16)
- 1.4 Certain TPN bags are suitable for central venous access, others for peripheral venous access. What is the difference between these 2 types of TPN bags? (2)
- 1.5 What is SMOF lipid? (6)

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- 1.6 You calculate the patient's nutritional requirements to be as follows:

Energy: 9125kJ

Protein: 95g

Carbohydrate: 213g

Fat: 102g

You choose Regimen 8807A which provides 9320kJ, 105g protein, 200g carbohydrate, 100g fat, and you advise the nursing staff that the TPN should run at 50ml/hr initially. By tomorrow morning they must have increased the rate to 100ml/hr (full volume).

The following day you go to ICU for your daily ward round. Make a list of what you need to follow up on when reviewing Vusi's feeding regime. (12)

- 1.7 Regimen 8807A contains 15g glutamine in 2390ml. Calculate Vusi's glutamine requirements. Are his requirements met? Justify your answer. (3)
- 1.8 After 1 week Vusi's GRV's have decreased to <200ml/24 hrs, and he is stable. The doctors decide to start enteral feeding and ask you to order a feed. Identify the type of feed you would choose? Substantiate your answer. (4)

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QUESTION 2

- 2.1 Abigail is a 4 year old girl who was travelling with her mom when they were involved in a car accident. She was admitted to the paediatric ICU with a head injury, 3 fractured ribs and a punctured lung. Her GCS was 8/15 on admission. She sustained no injury to her small or large bowel, and an NG tube was inserted for enteral feeding. After 2 weeks in ICU the doctors decide Abigail is stable enough to be discharged to the ward. She is receiving Nutrini Peptisorb via NGT @ 50ml/hr (semi-elemental feed was chosen because she was receiving inotropes), and her GCS has improved to 11/15.

Her patient details on admission are as follows:

Weight =17kg Height = 110cm

Blood results:

31/10/2013	Na (mmol/l)	K (mmol/l)	Cl (mmol/l)	U (mmol/l)	Cr (µmol/l)	TP (g/l)
	136	3.3	99	1	32	55
	Alb (g/l)	Ca (mmol/l)	Mg (mmol/l)	P (mmol/l)	GR (mmol/l)	
	26	1.8	0.7	1.1	5.4	

- 2.1.1 What does GCS stand for? (1)
- 2.1.2 Interpret her anthropometric status. (10 x ½=5)
- 2.1.3 Calculate her nutritional requirements using Appendix I, and prescribe an appropriate polymeric feed as Abigail is no longer receiving inotropes, and should tolerate a polymeric feed. (15)
- 2.1.4 Tabulate a feeding regime whereby you change her from Nutrini Peptisorb to your chosen polymeric feed. Include what rate you would feed her at from day 0 onwards, and how many days it would take to achieve the required feeding rate. (8)
- 2.1.5 Substantiate why head injury patients require such high stress factors when calculating their nutritional requirements. (5)
- 2.2 Mr Human is referred to you day 1 post surgery. He was diagnosed with severe Ulcerative Colitis and has now had a colectomy. The surgeons have made an ileostomy.
- 2.2.1 Define the terms “colectomy” and “ileostomy” (2)
- 2.2.2 Mr Human asks you why the effluent draining into his ileostomy bag is liquid, and if it will always be that way. Explain your answer. (4)

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2.2.3 Mr Human is being discharged. What dietary advice would you give him to implement once he is home, and why? Provide examples where appropriate. (10)

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QUESTION 3

3.1 Nomfundo is a 25 year old epileptic lady who fell into a fire during an epileptic seizure on the 22/09/2013. She sustained 38% full thickness burns to her face, arms and trunk. She was referred to your hospital from her local hospital for further management. She has undergone 3 debridements in theatre at her previous hospital, and was only receiving a soft ward diet. She appears withdrawn, and lies in bed all the time.

Her details are as follows:

Weight = 55kg Height = 1.58m

Biochemistry

	Na (mmol/l)	K (mmol/l)	U (mmol/l)	Cr (μ mol/l)	Ca (mmol/l)	Mg (mmol/l)	P (mmol/l)	TP (g/l)	Alb (g/l)	GR (mmol/l)
22/09/2013	136	5.7	5	65	2.28	0.81	0.9	61	28	7.6
30/09/2013	149	5.8	8	132	2.9	1	0.82	54	18	3.1
12/10/2013	130	2.9	2	48	1.8	0.61	0.5	47	14	2.9

3.1.1 Interpret Nomfundo's biochemistry. (12)

3.1.2 What would have caused the derangement of her biochemical results? (4x $\frac{1}{2}$ =2)

3.1.3 Calculate Nomfundo's nutritional requirements using Appendix II. (14)

3.1.4 What micronutrient supplementation would you recommend? (12 x $\frac{1}{2}$ =6)

3.2 Isaac is an 8 month old baby boy admitted to the paediatric ward. When you come across him in the ward he is lethargic and oedematous. He is receiving IV fluids, and is on gram negative antibiotics.

You obtain the following information from his medical file:

Weight: 5kg Length: 63cm Head circumference: 43cm MUAC: 10.5cm

Isaac has had a poor appetite and intermittent bouts of diarrhoea for the past month.

3.2.1 What is his diagnosis? (1)
 Justify your answer. (4 x $\frac{1}{2}$ =2)

3.2.2 Calculate his expected weight-for-age, and his % underweight. (3)

3.2.3 What is the recommended rate of weight gain? (1)

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- 3.2.4 The doctor contacts you and requests that enteral feeding be started. What would be your feed of choice, and why? (3)
- 3.2.5 What criteria must to be met before Isaac can be discharged? (6)

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QUESTION 4

Alfred is a 64 year old pensioner who lives with his daughter and her family. He was admitted to the medical ward complaining of night sweats, weight loss and has been coughing up blood for the past month. He was diagnosed with Pulmonary TB, and will be in hospital for the following 2 weeks.

Upon assessment you note the following:

Weight= 49kg Height= 1.72m

Blood results:

	Na (mmol/l)	K (mmol/l)	Cl (mmol/l)	U (mmol/l)	Cr (µmol/l)	TP (g/l)	Alb (g/l)	Ca (mmol/l)	Mg (mmol/l)	P (mmol/l)	Hb (g/dl)
3/11/2013	147	3.6	95	7	108	84	16	1.9	0.74	0.79	11

Clinically, Alfred has temporal wasting. The conjunctiva of his eyes is pale, as is his tongue. His oral hygiene is not good as noted by some missing teeth, with the remaining teeth stained yellow. You also note clubbing of his fingernails. His skin is dry.

Diet: Alfred reports a good appetite, eating 3 meals a day prepared by his daughter. He says he eats anything and is not fussy.

- 4.1 Interpret Alfred's nutritional status. (26 x ½= 13)
- 4.2 Calculate Alfred's nutritional requirements using Appendix III (12)
- 4.3 The following day you meet his daughter in the ward. She is very concerned as Alfred is not eating the soft diet you ordered for him. She also mentions that Alfred's appetite is normally very poor, and that he hardly ever eats the meals she cooks for him. She suspects that he is an alcoholic, as she often smells alcohol on his breath.

Alfred admits he is battling to chew and swallow due to fatigue. He agrees to try a full fluid diet. Below you are given the dietary analysis of the items making up the full fluid diet. Plan an appropriate day's diet for Alfred. (15)

Item	Volume	Energy (kJ)	Protein (g)	Carbohydrate (g)	Fat (g)
Porridge (with ½ cup milk)	325ml	1155	8.3	34.5	8.3
Yoghurt	200ml	800	5	35	5
Ensure	237ml	1045	9	40	6
Fortijuice	200ml	630	4	33.5	0
Vegetable Soup	200ml	335	1.4	9.4	4.3

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- 4.4 The doctor prescribes the following medications for Alfred: Isoniazid, Rifampicin, Diazepam, Thiamine, Pyridoxine. Please indicate what each medication is for, and any known contraindications/nutrition-related interactions with these drugs. (10)

TOTAL: 50 MARKS