

EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR, FIRST SEMESTER EXAMINATION IN AGRICULTURE 2016/2017

AC – 3102 Human Nutrition –Practical Examination

End semester Examination (January 2019)

Time allowed: 02 Hours

Answer all questions

- 1) Mrs. Vaani is a 40 years old lady, who is 1.58 m of height and 56 kg of weight. She is having 3 sons. Vaani usually prepare food for breakfast and lunch, and buy takeaways for dinner. Her average physical activity factor is 1.8.
- a) Comment on Vaani's body weight.
 - b) Calculate her Basal Metabolic Rate (BMR).
 - c) Calculate the Vaani's Total Daily Energy Expenditure (TDEE/TEE) in kcal/day.
 - d) Prepare a diet plan for her TEE.
- 2) a) Distinguish the term "junk food" from Nutritious food.
- b) The energy and other nutrients content of a standard piece of a food item is given below. Using the given data find out whether it is a junk food or a nutritious food.

Nutrient	Quantity (per 100g)	RDA
Energy(kcal)	512	2500
Protein (g)	23.43	55
Vit A(μ g)	646	750
Vit D(μ g)	12.53	2.5
Vit C (mg)	11.67	40
Vit B1(mg)	0.16	0.6

Vit B2(mg)	1.44	1.8
Vit B6(mg)	0.2	2
Vit B12(μ g)	2.45	1
Ca(mg)	888.67	800
P(mg)	759	550
Mg(mg)	76.13	49
Folic acid (μ g)	2.62	200

- 3) A researcher plan to assess the average physical activity factor of a male adult by using his physical activity diary. Summary of the physical activities of a 30 year old male whose weight is 62kg and height is 157.2cm is given below.

Sleeping for 8 hrs (MET-1)

Sitting quietly for 2hrs (MET-1.2)

Standing for 1hr (MET -1.5)

Child care for 5 hrs (MET-2.2)

Walking around for 0.5hr (MET-2.4)

Cooking for 1hr (MET-1.8)

Cleaning ground for 0.5hr (MET-1.8)

Lying for 4hrs (MET-1.2)

Cleaning house for 1hr (MET-2.2)

Sweeping yard for 1 hr (MET-3.5)

- Calculate the BMI of the above man and comment the result.
- Calculate the basal Metabolic Rate of the above man by using Harris Benedict equation.
- Calculate the total energy expenditure in kcal/day and kcal/kg/hr.
- Calculate the average physical activity factor and comment the result.

4) a) Explain why basal metabolic rate (BMR) should be measured after an overnight fast of 12 hours.

b) Mrs. Raani, a 55-year-old retired school teacher was admitted in the hospital for a surgery. During an initial nutrition screening, she currently weighs 51 kg, and is 155 cm tall. She usually prepares food for lunch and dinner, and buys takeaways for breakfast. Her average physical activity factor is 1.5. Mrs. Raani has been referred to you for a nutrition assessment.

- 1) Comment on Raani's body weight.
- 2) Calculate her Basal Metabolic Rate (BMR) by using Harris Benedict equation.
- 3) Calculate the Raani's Total Daily Energy Expenditure (TDEE/TEE) in kcal/day.

Harris- Benedict equation

Male - $BMR = 66.5 + 13.7x \text{ wt (kg)} + 5.0x \text{ ht (cm)} - 6.75x \text{ age (yr)}$

Female - $BMR = 655.1 + 9.5x \text{ wt (kg)} + 1.85x \text{ ht (cm)} - 4.67x \text{ age (yr)}$

Food exchange groups

Food items/100g	CHO(grams)	Protein(grams)	Fat(grams)
Pittu (rice flour)	55.2	6.2	14.4
Rice, parboiled, home pounded	77.4	8.5	0.6
Rice, highly milled, raw	78.2	6.8	0.5
Roty(wheat flour)	42.9	6.9	15.5
String hoppers(wheat flour)	66	9.3	1.3
Hoppers (rice flour)	58.2	5.6	11.2
buns	65.3	7	2.3

Food group	Unit of exchange	Composition				Characteristic item
		Carbo. (g)	Protein (g)	Fat (g)	Energy Kcal	
Milk	01 cup					
Skim		12	08	-	90	Skim or very low fat/ 3tsp milk powder
Low fat		12	08	05	120	
Whole		12	08	08	150	
Vegetables	½ cup	05	02	-	25	Medium carbohydrate
Fruit	Varies	15	-	-	60	Portion size varies with carbohydrate value of item
Bread	Varies; 01 slice (30 g)	15	03	-	80	Variety of starch items, bread, cereals, vegetables; portions equal in carbohydrate value to 01 slice of bread.
Meat	28 g (01 oz)					Exchange units equal to protein value of 28 g lean meat.
Lean		-	07	03	55	
Medium fat		-	07	05	75	
Higher fat		-	07	08	100	
Fat	01 tsp					01 tsp margarine (oil, olives, mayonnaise, avocados)
Poly unsat.		-	-	05	45	
Mono uasat.		-	-	05	45	
Saturated		-	-	05	45	