

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2016

Module Title: Nutrition and Health

Module Code: BIOL7026

School: Science and Informatics

Programme Title(s): BSc. (Hons) Nutrition and Health Science – Year 3
BSc. Food and Health Science – Year 3
BSc. (Hons) Agricultural Science – Year 4
BSc. (Hons) Horticulture – Year 4

Programmes Code(s): SNHSC_8_Y3
SFSTE_7_Y3
BAGRI_8_Y4
BHORT_8_Y4

External Examiner(s): Dr Tom O'Connor

Internal Examiner(s): Dr Aoife McCarthy
Dr Helena Stack

Instructions: Answer question one **and** two other questions.
All questions carry equal marks.

Duration: 2 hours

Sitting: Autumn 2016

Requirements for this examination: Calculator

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination. If in doubt please contact an Invigilator.

Answer question one **and** two other questions.

Q1. Jane is a 46 year old woman, with weight 180 lbs and height 1.7m. Jane's waist circumference is 70cm and her hip circumference is 82cm. The sum of Jane's skinfold thickness measurements of her biceps, triceps, subscapular and suprailiac total 60mm. Jane's physical activity level is classed as sedentary. Jane has been complaining of feeling weak and lethargic and she has a pale appearance.

The following nutrient intake and biochemical data has been derived from a nutritional assessment of Jane:

Total calories: 1620kcal

Protein: 60g

Fat: 75g

Carbohydrate: 176g

Calcium: 600mg

Iron: 8mg

Urinary albumin: 32mg/g

- (i) Calculate **and** classify Jane's body mass index (BMI). (3 marks)
- (ii) Calculate Jane's waist-hip ratio (WHR). (2 marks)
- (iii) What does the WHR indicate? Is Jane's WHR healthy? Give a reason for your answer. (3 marks)
- (iv) What **four** nutritional assessment methods would have been completed to obtain all this information about Jane? (2 marks)
- (v) What percentage of Jane's total calories come from carbohydrate? (2 marks)
- (vi) Suggest one possible reason for Jane's weakness, lethargy and paleness, taking her nutrient intake data into account. (2 marks)
- (vii) According to the Harris-Benedict equation, given below, what is Jane's resting energy expenditure (REE)? (2 marks)

$$\text{REE females (kcal/day)} = (\text{weight (kg)} \times 9.56) + (\text{height (cm)} \times 1.85) - (\text{age (yrs)} \times 4.68) + 655.10$$
- (viii) Calculate Jane's estimated energy requirement (EER). (2 marks)
- (ix) What is Jane's daily protein requirement? (2 marks)

Q2. “A healthy diet prior to and during pregnancy will promote optimal growth and development of the baby”. Discuss under the following headings:

- (i) Maternal preconception weight status (4 marks)
- (ii) Folate prior to and during pregnancy (4 marks)
- (iii) Energy, protein and calcium requirements during pregnancy (9 marks)
- (iv) Alcohol and Pregnancy (3 marks)

Q3. Write short notes on the following:

- (i) Types of diabetes mellitus (5 marks)
- (ii) Type 2 diabetes risk factors (5 marks)
- (iii) Diabetic complications (5 marks)
- (iv) Glycaemic index (5 marks)

Q4. Write short notes on the following:

- (i) Nutrient density and energy density (5 marks)
- (ii) The four categories of nutritional status (5 marks)
- (iii) Advantages and disadvantages of a 24-hour dietary recall (5 marks)
- (iv) Nutritional guidelines for the elderly (5 marks)