ST MARY’S UNIVERSITY

TWICKENHAM, LONDON

MSc Examination students registered for

Level **SEVEN**

Title: **Principles of Nutrition 2**

Code: **HNU7024**

Semester: **Resit**

Date: **05 July 2019**

Time: **09:30-11:30am**

TIME ALLOWED: **TWO** HOURS

**Section A:**

Answer **ALL** questions in this section. There is one correct answer for each question (2 marks each).

1. Glycolysis converts glucose into which molecule?
   1. Pyruvate
   2. Acetyl CoA
   3. Palmitate
   4. Triacylglycerol
2. The formation of an amino acid is made up from which of the following?
   1. Amine group, amine group, Backbone
   2. Amine group, Acid Group, Backbone
   3. Acid group, Acid group, Backbone
   4. Amine Group and Backbone only
3. Arachidonic acid, 20:4n-6 is:
   1. A polyunsaturated 18-carbon trans fatty acid with 6 double bonds
   2. A polyunsaturated 20-carbon fatty acid with 4 double bonds, the first occurring at carbon 6.
   3. A polyunsaturated 20-carbon fatty acid with 2 functional groups and 6 double bonds
   4. A monounsaturated fatty acid with 6 amine groups attached
4. A polyunsaturated fatty acid in Trans formation has:
   1. Adjacent hydrogen atoms on the same side as the double bond
   2. Adjacent hydrogen atoms on the opposite side of the double bond
   3. All hydrogen atoms on the same side as the double bond
   4. All hydrogen atoms on the opposite side as the double bond
5. Linoleic acid and linolenic acid are examples of:
   1. transport proteins
   2. lipoproteins
   3. essential fatty acids
   4. essential amino acids
6. During lipolysis:
   1. triglycerides are converted into molecules of acetyl-CoA
   2. triglycerides are broken down into glycerol and fatty acids
   3. lipids are converted into glucose molecules
   4. lipids are formed from excess carbohydrates
7. Which enzyme mediates the uptake of triacylglycerol into the adipose tissue?
   1. Hormone sensitive lipase
   2. Pancreatic lipase
   3. Lipoprotein lipase
   4. Insulin
8. In the electron transport chain:
   1. coenzymes receive hydrogen atoms from NADH and FADH2
   2. oxidized molecules gain energy at the expense of reduced molecules
   3. oxidative phosphorylation takes place and ATP is formed
   4. A and C only
9. The sum of all of the biochemical processes going on within the human body at any given time is called:
   1. glycolysis
   2. oxidative phosphorylation
   3. catabolism
   4. metabolism
10. Inside the mitochondrion, each pyruvate molecule:
    1. forms a molecule of citrate
    2. loses a carbon atom
    3. attaches to NAD
    4. directly enters the electron transport system

**Section B:**

Answer **ALL** questions in this section (5 marks each).

1. Describe how fat is digested and absorbed.
2. Briefly identify and explain the possible fates of pyruvate.
3. Explain the process of oxidative deamination.
4. Explain the three stages of Glycolysis.

**Section C:**

Answer **ONE** question from this section (60 marks)

1. Compare and contrast fat metabolism in the fed and fasted states, with particular consideration of the regulatory hormones involved.
2. Discuss how pathways of glucose, fat and protein metabolism interact in the fed, fasted and starved state.

**END OF EXAMINATION**