ST MARY’S UNIVERSITY

TWICKENHAM, LONDON

MSc Examination students registered for

Level **SEVEN**

Title: **Principles of Nutrition 2**

Code: **HNU7024**

Semester: **ONE**

Date: **January 17th 2019**

Time: **9:30 – 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. During protein synthesis which process uses the codon A-U-G to begin?
  1. Transcription
  2. Transformation
  3. Translocation
  4. Translation

1. The pentose phosphate pathway is primarily responsible for the synthesis of:
2. ATP
3. ADP
4. NADPH
5. NADH
6. Glucose can be converted to fat but fat cannot be converted to glucose because:
   1. Three steps of glycolysis are irreversible
   2. AcetylCoA cannot be converted to lactate
   3. AcetylCoA cannot be converted to pyruvate
   4. Acetyl CoA cannot be converted to citrate
7. Which of the following statements is correct?
8. Chromosomes are part of genes
9. Genes are part of chromosomes
10. DNA is part of chromosomes
11. All of the above
12. During prolonged physical activity, which biochemical process creates glucose (to be utilised in the muscle) from non-glycogen sources?
    1. Glycolysis
    2. Gluconeogenesis
    3. Glycogenesis
    4. Lipogenesis
13. Reactions within \_\_\_\_\_ provide most of the energy needed by a typical cell.
    1. Cytoplasm
    2. The cell wall
    3. The mitochondria
    4. The endoplasmic reticulum
14. What enzyme mediates the uptake of triacylglycerol into the adipose tissue?
    1. Hormone sensitive lipase
    2. Pancreatic lipase
    3. Lipoprotein lipase
    4. Insulin
15. 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
16. 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
17. Transamination is the process by which:
    1. An amino group is attached to a Keto-acid
    2. An amino acid is broken down
    3. An amino group is attached to an enzyme
    4. An amino acid is converted into energy

**Section B:**

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

1. Briefly outline the fate of Acetyl CoA during the Kreb’s Cycle
2. Describe how fat is digested and absorbed.
3. What is meant by the term ‘indispensable amino acids’?
4. Explain the three stages of Glycolysis.

**Section C:**

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

1. Explain the biochemical processes that take place when blood glucose levels increase and there is a simultaneous accumulation of ATP.
2. Critically discuss the hormonal regulation of carbohydrate, fat and protein metabolism during starvation.

**END OF EXAMINATION**