The formation of glucose from proteins or lipids is referred to as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Glycolysis
2. Glycogenolysis
3. Gluconeogenesis
4. Glycogenesis

ANSWER: C

Which of the following is an anabolic hormone that causes glucose to be removed from the blood and stored as glycogen in the liver and muscles?

1. Cortisol
2. Insulin
3. Glucagon
4. Epinephrine
5. Glucagon

ANSWER: B

Essential nutrients are defined as all the nutrients that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. you take into your body
2. are also micronutrients
3. your body cannot produce and that must be ingested
4. you use to produce proteins in your body

ANSWER: C

Basal metabolic rate tends to be higher in \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. a person with more muscle
2. a child compared to an adult
3. people that have higher thyroxine levels
4. males compared to females
5. all of the above are correct

ANSWER: E

Glycolysis \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. is aerobic
2. produces lactic acid
3. produces pyruvate (or pyruvic acid)
4. A & B
5. A & C

ANSWER: C

At the end of the Citric Acid Cycle (and before the electron transport chain), which of the following high energy molecule is produced in the greatest amount?

1. NADH
2. ATP
3. Glucose
4. Pyruvate

ANSWER: A

In the electron transport chain, the movement of the electrons causes what ion to be pumped out of the inner matrix in the mitochondria?

1. Ca++
2. NA+
3. H+
4. Cl-

ANSWER: C

Which of the following high energy molecules is produced by the electron transport chain during the final step of aerobic respiration.

1. NADH
2. DNA
3. ATP
4. CO2
5. C6H12O6

ANSWER: C

Glycolysis \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. occurs in the mitochondria.
2. produces 36 ATP
3. does not require oxygen
4. B & C
5. all of the above

ANSWER: C

Fat stored in your body would be an example of both \_\_\_\_\_\_\_\_\_\_ energy.

1. potential and chemical
2. kinetic and chemical
3. potential and mechanical
4. kinetic and mechanical

ANSWER: A

If oxygen is **not** present during the catabolism of pyruvate, then pyruvate is \_\_\_\_\_\_\_\_\_\_.

1. converted to acetyl-CoA and enters the citric acid cycle
2. used to pump hydrogen ions out of the internal matrix in the mitochondria
3. is broken down into lactic acid which can then be eventually converted back to glucose
4. broken down into carbon dioxide and water in the mitochondria

ANSWER: C

Proteins are composed of monomers called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. nucleic acids
2. amino acids
3. monosaccharides
4. fatty acid and glycerol

ANSWER: B

Which of the following is an end product of the citric acid cycle?

1. Lactic acid
2. Glucose
3. Pyruvate
4. Oxygen
5. Carbon dioxide

ANSWER: E

Which of the following is a **high energy molecule** produced by the electron transport chain during the **final step** of the electron transport chain and oxidative phosphorylation

1. NADH
2. DNA
3. ATP
4. CO2
5. C6H12O6

ANSWER: C

Polysaccharides are examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. fats
2. proteins
3. lipids
4. carbohydrates

ANSWER: D

Chemical reactions that require more energy than they release are typically \_\_\_\_\_\_\_\_\_\_\_ and are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. catabolic / endergonic
2. catabolic / exergonic
3. anabolic / endergonic
4. anabolic / exergonic

ANSWER: C

 If too much energy is taken in as carbohydrates, the excess energy is stored as \_\_\_\_\_\_.

1. triglycerides
2. proteins
3. nucleic acids
4. starch

ANSWER: A

Define glycogenesis, glycogenolysis, gluconeogenesis, and lipogenesis. Which is (are) more likely to occur shortly after a carbohydrate rich meal and just after waking in the morning?

Explain the effect of the following on metabolic rate: thyroxine levels, eating, body surface area, muscular exercise, emotional stress, starvation.