

Advanced Nutritional Biochemistry

Nutrition & Food Science · Practice Test · 8 Questions

1. Which specific transport protein is responsible for the facilitative diffusion of fructose into enterocytes, independent of sodium-glucose cotransporter 1 (SGLT1)?

- A) GLUT1
- B) GLUT2
- C) GLUT5
- D) GLUT4

2. What is the primary metabolic role of the enzyme alpha-ketoglutarate dehydrogenase in the citric acid cycle?

- A) Substrate-level phosphorylation of GTP
- B) Decarboxylation of alpha-ketoglutarate to succinyl-CoA
- C) Oxidation of succinate to fumarate
- D) Reduction of NAD⁺ to NADH during glycolysis

3. In human lipid metabolism, what is the rate-limiting enzyme in the synthesis of cholesterol?

- A) HMG-CoA reductase
- B) Acetyl-CoA carboxylase
- C) Acyl-CoA cholesterol acyltransferase
- D) Squalene monooxygenase

4. Vitamin B12 (cobalamin) requires the presence of which specific glycoprotein, secreted by parietal cells, to facilitate its absorption in the terminal ileum?

- A) Haptocorrin
- B) Transcobalamin II
- C) Intrinsic factor
- D) Gastric lipase

5. Which mineral acts as an essential cofactor for the enzyme glutathione peroxidase, which protects cells from oxidative damage?

- A) Copper
- B) Selenium
- C) Zinc
- D) Molybdenum

6. During the post-absorptive state, which organ is responsible for the majority of gluconeogenesis to maintain blood glucose homeostasis?

- A) Skeletal muscle
- B) Pancreas
- C) Liver
- D) Adipose tissue

7. What is the chemical identity of the primary physiological form of Vitamin D synthesized in the skin upon exposure to ultraviolet B radiation?

- A) Cholecalciferol
- B) Ergocalciferol
- C) Calcitriol
- D) 25-hydroxyvitamin D

8. Which essential amino acid is the primary precursor for the synthesis of the neurotransmitter serotonin within the central nervous system?

- A) Tyrosine
- B) Phenylalanine
- C) Tryptophan
- D) Methionine