

SBI4U Exam Review

Sample Short Answer Questions:

1. Contrast how Hydrogen Bonds and Covalent Bonds contribute to the function of molecules in different cellular processes (ie transcription/translation, cellular respirations...)
2. Explain the role of enzymes and how they function. Why they are so vital to life?
3. Using diagrams to assist your answer, explain the various levels of structure that occur in the formation of proteins.
4. Compare the Krebs's Cycle with the Calvin Cycle (in C3 plants).
5. Compare the electron transport chain in cell respiration to the light reactions of photosynthesis.
6. Ectotherms can deal with food shortage situations much better than endotherms. Explain this phenomenon.
7. The body has many mechanisms to regulate homeostasis of various levels. Explain the need for both positive and negative feedback loops.
8. When kidney function is impaired blood pressure regulation is disrupted. How would this loss of homeostasis affect the body's cells? Explain.
9. People who have severe allergies to bee stings or peanuts usually carry a syringe with a solution of adrenaline. How does this help them survive an attack?
10. Local anesthetics used by dentists to deaden pain block work on Na⁺ channels. How does this work and why is this effective?
11. Hyponatremia is a condition when there is too little sodium in the body. Explain the effects of this on different body systems, and how (and why) they body combats this problem.
12. Explain how a mutation in DNA can change the ability of a cell to transport Na⁺ across a membrane (This answer requires information from 2 units!).
13. DNA Replication creates a copy from a template. Transcription also makes a copy from a DNA template. Differentiate between the "copying" processes taking place in these two processes.
14. Using the unaltered strand of DNA below, show how a frameshift mutation could cause a change in the structure of a protein by taking a mutated strand of DNA through protein synthesis.

5' AGTTCACTTCGATAGCCAGTACGTAATAT 3'