Module 6: Metabolism — Study Questions

1. What is metabolism?
2. What is the difference between kinetic and potential energy?
3. State the First Law of Thermodynamics.
4. State the Second Law of Thermodynamics.
5. How do living systems maintain order if entropy always increases?
6. What is activation energy?
7. How do enzymes lower activation energy?
8. What is the active site of an enzyme?
9. What factors affect enzyme activity (temperature, pH, substrate concentration)?
10. What is competitive inhibition?
11. What is non-competitive (allosteric) inhibition?
12. Describe the structure of ATP. Where is the energy stored?
13. How does ATP release energy?
14. What is the difference between anabolic and catabolic pathways?
15. Is photosynthesis anabolic or catabolic? Why?
16. Is cellular respiration anabolic or catabolic? Why?
17. What are oxidation-reduction (redox) reactions?
18. In a redox reaction, which molecule is oxidized and which is reduced?
19. What is feedback inhibition? Why is it efficient?

20. What happens to an enzyme if it is denatured?