

Biology 150:2nd in-class examination
Oct 11, 2010

Name _____

Indicate the lab you are registered in:

Tuesday, 8-9:50 _____

Tuesday, 10-11:50 _____

Tuesday, 12-1:50 _____

Tuesday, 3-4:50 _____

Tuesday, 5-6:50 _____

Thursday, 12-1:50 _____

Answer the questions in the space provided and you may also use the back of the page to complete your response. There are 22 questions worth a total of 50 points (plus three bonus questions). The point value of individual questions appears in parentheses.

1. Define the following: (3)
 - a) protoplasm
 - b) cytosol
 - c) cytoplasm
2. In a eukaryote cell where do you find the nucleolus? What is its function? (2)
3. The endoplasmic reticulum is divided into two major types. Name them and indicate how their functions differ. (2)
4. What distinguishes microbodies from other organelles? Name two types of microbodies. (2)
5. Draw a mitochondrion. Label cristae, matrix, membranes, and indicate where ribosomes are found. (3)
6. What are proplastids? (1)

14. Name and describe the types of facilitative diffusion transporters. How do they differ? (3)

15. Animal cell membranes typically have an electrical potential or voltage across them. What creates this voltage and describe how. Where does the energy come from? (4)

16. Name and describe the types of cotransporters. Should they be classified as active transport, passive transport, or neither. (3)

17. Name and describe three forms of endocytosis. (3)

18. State the first law of thermodynamics. (1)

19. Consider a burning match where the organic molecules of the match (e.g. cellulose) are combining with O_2 to form H_2O and CO_2 . (3)
- Is ΔG negative, positive or zero?
 - Is ΔH negative, positive or zero?
 - Is ΔS negative, positive or zero?
20. Which of the following describe the process of melting ice: exothermic, exergonic, endothermic, endergonic, spontaneous, non-spontaneous (circle all that apply). (1)
21. The combustion of which has the higher activation energy: the wood of a matchstick or the chemicals at the tip of the match? Or is the activation energy likely to be the same? (1)
22. The chemical equilibrium constant for a specific reaction ($A \rightarrow B$) is 2. At chemical equilibrium the concentration of the B is 4M. What is the concentration of A? (1)

Bonus questions:

- What does the “cisternal maturation model” describe? (2)
- Rigor mortis* occurs some time after death. What actually happens and why? (2)
- Plant cells in a _____ solution will lose water and shrivel or (to be more technical) they become _____. (2)