

AP BIOLOGY FALL SEMESTER EXAM REVIEW

34 MULTIPLE CHOICE QUESTIONS (2 POINTS EACH)

1 GRIDDABLE QUESTION (7 POINTS)

1 LONG FREE RESPONSE (15 points)

1 SHORT FREE RESPONSE (10 points)

Concepts To Review

1. Know the elements that make up each biomolecule and be able to interpret data based off of this information
2. Identify how amino acids bond together to form a peptide
3. What features are unique to prokaryotic cells (archaea and bacteria)
4. Provide a justification why mitochondria are similar to prokaryotes
5. What is an advantage of eukaryotic cells having internal membranes?
6. pathway of processing and packaging a secretory protein within a eukaryotic cell
7. Liver cells manufacture glycoproteins, while adipose cells store fat. What subcellular structures is likely to be more prominent in liver cells than in adipose cells?
8. How do ions and water move through the phospholipid bilayer and why?
9. You will be given a scenario that models osmosis based on initial and final mass. You must be able to determine which beaker solution is isotonic, hypertonic, and hypotonic. You must also apply this to pressure potential in plant cells.
10. Describe what will happen to red blood cells (RBCs) when placed in a physiological saline solution (0.9% sodium chloride) that is used to quickly rehydrate patients.
11. Explain what would happen to a paramecium, that has contractile vacuoles to remove excess water, were placed in various concentrations of a solution containing salt.
12. Know the significance of surface area to volume ratio and be able to determine which cell would be the most efficient at transporting materials by diffusion
13. Importance of aquaporins
14. Explain what would happen if a drug interacts with the cells signal transduction pathway.
15. Describe the initial steps in the process of epinephrine, a protein hormone, stimulates the breakdown glycogen.
16. draw a graph that shows an enzyme-catalyzed reaction from low substrate concentration to saturating substrate concentrations
17. function of the coenzymes NAD⁺ and FAD in eukaryotic cellular respiration

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18. Analyze an experiment that involves seed germination and the effects of temperature and oxygen availability
19. You will be given a set of data comparing different respiring organisms. You need to analyze the data and make conclusions about the process of respiration in the two organisms.
20. When, where and how is oxygen gas released during photosynthesis
21. What are the similarities between ATP synthesis in mitochondria and chloroplasts?
22. Explain why ATP production is greater in the presence of oxygen
23. Metabolic consequence of shortage of oxygen in muscle cells
24. During photosynthesis G3P is used with what molecule to fix carbohydrates?
25. Be able to calculate the water potential of a plant cell based on a graph that shows percent change of mass (griddable)
26. Be able to explain the location and function of proteins made by free ribosomes and the location and function of proteins made by attached ribosomes (attached to the Endoplasmic Reticulum). (short FRQ)
27. You will be provided data from an experiment and general information about the experiment. You will need to identify all the variables, controls, constants, make a conclusion, evaluate the procedure and suggest ways in which it could be improved and how else the experiment could be conducted to test the hypothesis. Here is the experimental question: if the main photosynthetic organs of a plant (the leaves) were removed, would the plant photosynthesize less, but would continue to respire at the same rate? (long FRQ)