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| **AP BIOLOGY 2016-17** **Mid-Term Review Packet – Part 3** Unit 3     ***Cellular Energetics*** | http://www.biologyjunction.com/images/atomicam2.gif |

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| http://www.biologyjunction.com/images/BD14792_1.GIF | What form of energy is the most random? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What changes occur in http://www.slac.stanford.edu/icon/symbol/delta-c.gifH, http://www.slac.stanford.edu/icon/symbol/delta-c.gifS, and http://www.slac.stanford.edu/icon/symbol/delta-c.gifG when a protein forms from amino acids? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | How does an enzyme catalyze a reaction? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Explain the 2nd law of thermodynamics. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Is a chemical reaction with a positive http://www.slac.stanford.edu/icon/symbol/delta-c.gifG endergonic or exergonic? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | List the properties of enzymes. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Why is ATP an important metabolic molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Describe the change in free energy at equilibrium. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Increasing substrate concentration has what effect on competitive inhibition? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is the first law of thermodynamics? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | When energy is transformed, what is the effect on entropy in the system? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | If temperature is kept uniform in a system, free energy will be what? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | If products have less free energy than reactants, is the reaction endergonic or exergonic? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is catabolism? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | How is energy obtained from ATP to energize cellular processes? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | If the concentration of reactants is decreased, what effect will this have on the rate of the reaction/ |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What type of pathways are coupled with anabolic pathways to supply ATP to cells? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Explain enzyme cooperativity & allosteric sites. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Explain the induced fit explanation for enzymes & substrates. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is free energy? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Describe CO2 fixation & the Calvin cycle in CAM plants. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Photorespiration decrease the efficiency of photosynthesis because it removes what from the Calvin cycle? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is synthesize across thylakoid membranes? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Why can C4 plants better at photosynthesis without photorespiration? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What pigments can absorb light energy? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Proton gradient are responsible for producing what energy molecules? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Give 2 examples of products of the Calvin cycle that are used in the light reactions? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What 2 main energy molecules are products of the light reactions? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Is glucose required for the Calvin cycle? Explain. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In what reactions is glyceraldehyde phosphate produced? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | If a pigment appears red to your eyes, what color of light is not being absorbed? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | During what process is CO2 incorporated into PGA? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | The chemiosmosic process in chloroplasts occurs when what type of gradient is established? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Name the most abundant protein (enzyme) in the world. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In what tissue does carbon fixation occur in C4 plants before being transferred to bundle-sheath cells? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Photosystem II uses which chlorophyll a molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What gas is required and which gas is not required for photosynthesis to occur? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is the primary energy source for plants? for animals? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What enzyme catalyzes phosphorylation? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Where in the chloroplast does the Calvin cycle occur? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What type of plants fix CO2 into organic acids during the day? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | When does the Calvin cycle in most plants occur? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Which color of light is least effective in driving photosynthesis? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Cyclic electron flow in chloroplasts produces what energy molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Where does the ETS in plants occur? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In terms of energy how are photosynthesis & cellular respiration related? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In what 2 membranes in plant cells is ATP synthetase found? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Is oxygen released in the light or dark reactions of photosynthesis? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Does photophosphorylation occur in Photosystem II? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In which photosystem is water split? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Which process does not give a net gain in ATP ---glycolysis, aerobic respiration, or fermentation? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Which would release more energy from glucose --- combustion or cellular respiration? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Is ATP a product of lactate fermentation? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | If a metabolic poison interferes with glycolysis, what must its structure be most like? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Are water and CO2 end products of glycolysis? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Which has more energy ---NAD or NADH? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Oxidative phosphorylation occurs across \_\_\_\_\_\_\_\_\_\_\_in a cell. |
| http://www.biologyjunction.com/images/BD14792_1.GIF | which has more energy --- glucose at the start of glycolysis or the 2 pyruvate molecules at the end of glycolysis? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Molecular oxygen supplies the oxygen atoms during oxidative phosphorylation to form what? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What is chemiosmosis? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Lactate is a by-product of fermentation in what type of animal cells? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What type of enzyme in cellular respiration helps remove electrons from organic molecules? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | The ETS helps a cell generate what energy molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Will glycolysis occur if oxygen is present? Is oxygen needed for the process? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | The difference in H+ concentration of either side of the mitochondrial membrane drives the synthesis of what molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Where in a cell will the enzymes needed for glycolysis be found? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Citric acid has 6 carbons. In the Krebs cycle 2 CO2 molecules are given off before succinic acid is formed. How many carbons will succinic acid have? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | During substrate-phosphorylation, how many ATP molecules are made each cycle? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Isocritic acid has 6 carbons while ketoglutaric acid in the Krebs cycle only has 5 carbons. What happened to the "missing" carbon? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What gas accepts electrons at the end of the ETS? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Substrate-level phosphorylation during fermentation generates what molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | Acetyl CoA is made in muscle cells only under what conditions? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | The end products of glycolysis are ATP, NADH, and what carbon molecule? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What 2 electron acceptor molecules in the Krebs cycle convert their energy to ATP in the ETS? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | In chemiosmosic phosphorylation what is the direct energy source that drives the conversion of ADP + free P into ATP? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | The glycolysis of glucose by a yeast cell nets how many ATP's? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What intermediary metabolite of pyruvate enters the Krebs cycle? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | How is a proton gradient established in the mitochondria? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | How many O2 molecules are produced from the complete oxidation of glucose? |
| http://www.biologyjunction.com/images/BD14792_1.GIF | What type of animal tissue has a high ATP requirement? |

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