Unit II Jeopardy

Misc	Respiration	Photosynthesis	Molecules	Membrane Transport
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

Final Jeopardy

Final Jeopardy
Redox reactions

Redox reactions are an integral part of respiration and photosynthesis. For each set of reactions (photosynthesis and respiration) write as many compounds as possible that are reduced and oxidized.

Answer:

Misc-100

How many carbon atoms are in pyruvate? Acetyl Co-A?

- **Answer: 3, 2**

Answer | Question | 

Misc-200

What happens to an animal cell in a hypertonic solution?

Answer:

a. It shrinks

Answer | Question | 

Misc-300

What is the name for the enzyme that fixes carbon dioxide in the Calvin Cycle?

Answer:

Rubisco

RuBP carboxylase

Answer Question 

Misc-400

What type of plants fix carbon dioxide at night to reduce water loss? Give a specific example.

Answer:

CAM-succulents, cacti

Answer | Question | 

Misc-500

Where does fermentation take place within a cell?

What are the two types of fermentation?

What are the products of each type of fermentation?

Answer:

1. **Cytoplasm**
2. **Lactic Acid/Alcohol**
3. **Lactic acid, ATP, NAD+**

   Ethanol, ATP, CO_2, NAD+

Answer | Question | 

Respiration-100

What substance is oxidized during respiration?

Answer: glucose

Answer Question 

Respiration-200

What is the final electron acceptor in the electron transport chain?

Answer: oxygen

Answer | Question | 

Respiration-300

What role do each of the following molecules play in cellular respiration?

a. NAD+

b. Glucose

c. ATP synthase

d. H+

- **Answer:**

a. Electron acceptor, temporary storage of energy

b. Energy source

c. Protein that synthesizes ATP

d. Force to drive ATP synthase

Answer | Question | 

Respiration-400

Tell how many carbon atoms each of the following compounds have:

a. Carbon dioxide

b. Oxaloacetate

c. Pyruvate

d. Acetyl Co-A

Answer:

a. 1

b. 4

c. 3

d. 2

Answer Question 

Respiration-500

Name the enzyme that must be present for each of the following processes to occur.

a. NAD+ to be reduced to NADH

b. ATP to be made

Answer:

a. Dehydrogenase

b. ATP synthase

Answer | Question | 

Photosynthesis-100

What are stacks of thylakoid membranes called?

- **Answer:grana**

Answer | Question | 

Photosynthesis-200

What is produced during cyclic electron flow?

Answer: ATP

Answer | Question | 

Photosynthesis-300
Daily Double!

The light reactions must occur before carbon dioxide can be converted to glucose.

a. Where in the plants do the light reactions take place?

b. What are three things produced during the light reactions?

Answer:

a. Thylakoid membranes

b. Oxygen, ATP, NADPH

Answer | Question | 

Photosynthesis-400

What is photorespiration?

Answer: When carbon dioxide levels drop due to closed stomata, rubisco fixes oxygen instead. The product is diverted to peroxisomes and broken down into carbon dioxide with no release of energy

Answer | Question | 

Photosynthesis-500

C-3 plants only use the enzyme rubisco in the Calvin Cycle. C-4 plants use the enzyme PEP carboxylase to fix carbon dioxide first.

a. Where does the initial carbon fixation occur in C-4 plants?

b. Where does the Calvin cycle take place in C-4 plants?

c. What is the main difference between rubisco and PEP carboxylase?

- Answer:

a. Mesophyll cells

b. Bundle sheath cells

c. PEP carboxylase has a higher affinity for carbon dioxide than rubisco

Answer Question

Molecules-100

What is the most important source of energy for cells?

- **Answer: ATP**

Answer | Question | 

Molecules-200

By what process do the following substances enter a cell?

a. Water

b. glucose

c. oxygen

Answer:

a. Aquaporins

b. Facilitated diffusion

c. Through plasma membrane

Answer | Question | 

Molecules-300

What substance has to be regenerated in each of the following processes in order for the process to continue?

a. Glycolysis

b. Krebs cycle

c. Calvin cycle

Answer:

a. NAD+

b. Oxaloacetate

c. RuBP

Answer Question 

Molecules-400

What type of macromolecule is ATP synthase? What are the building blocks of it called? Where must ATP synthase be located in a cell?

Answer:

Protein, amino acids, in a membrane

Answer | Question | 

Molecules-500

Describe how NADH converts its stored energy to ATP.

Answer:

Electrons get passed on to more and more electronegative substances until they reach oxygen. H+ ion is stripped off and actively pumped across a membrane. ATP synthase in the membrane using the H+ ion gradient to power the phosphorylation of ADP to ATP

Answer | Question | 

Membrane Transport-100

What are three specific compounds that pass easily through the plasma membrane.

- **Answer: oxygen, carbon dioxide, water**

Answer | Question | 

Membrane Transport-200

What does increasing the solute concentration within a cell do to the water potential of the cell?

Answer: It decreases the water potential, making it more favorable for water to enter the cell

Answer | Question | 

Membrane Transport-300

Give one example for each of the following types of molecules.

a. Charged

b. Small, nonpolar

c. Small, polar

- **Answer:**

a. Na+

b. Oxygen

c. water

Answer | Question | 

Membrane Transport-400

A beaker is divided in half by a selectively permeable membrane that does not permit starch to pass. On one side (A) there is a 20% starch solution. On the other side (B) there is distilled water and iodine. What will happen over the course of 24 hours?

- **Answer: Water and iodine will diffuse into the bag causing it to swell and turn dark purple in color.**

Answer | Question | 

Membrane Transport-500

Give two types of passive transport and two types of active transport, as well as a type of molecule that would be transported by each.

- **Answer:**

Passive : (facilitated: glucose) (diffusion: water)

Active: (protein pump: Na+ & K+) (Endocytosis: cholesterol)

Answer | Question | 

FINAL JEOPARDY

- **Answer:**

Answer | Question |