

Unit 2 Assignment 1: Explain the function and purpose of ATP.

Use the notes to answer the following questions.

Question 1 (1 point)

Heterotrophs (Animals) get energy from

- a producing their own energy
- b make energy and synthesize sugars through photosynthesis
- c eating organic molecules
- d converting energy from sunlight to chemical energy

Question 2 (1 point)

Autotrophs (plants)

- a get their energy from eating others
- b make energy through eating food
- c produce their own energy (from "self")
- d get energy from breaking down organic molecules made by other organisms

Question 3 (1 point)

Plants need to do all the following EXCEPT:

- a get building block atoms/molecules from the environment
- b store light energy in a stable form to be moved around the plant
- c collect chemical energy and transform it into solar energy
- d produce ALL organic molecules needed for growth including carbohydrates, proteins, lipids, nucleic acids

Question 4 (1 point)

The function of ATP is to be a chemical energy storage molecule by storing the energy in the _____ between phosphate groups.

- a adenosine
- b phosphate groups
- c ribose sugar
- d chemical bonds

Question 5 (1 point)

The purpose of ATP is to be a molecule which can be used by cells to provide a source of _____ energy so the cell can complete cellular tasks/activities.

- a solar
- b thermal
- c chemical
- d activation

Question 6 (1 point)

In an ATP molecule, Adenine and Ribose =

- a phosphate group
- b adenosine
- c activation energy
- d chemical energy

Question 7 (1 point)

The sugar in an ATP molecule is

- a Adenine
- b Chemical Energy
- c Phosphate group
- d Ribose

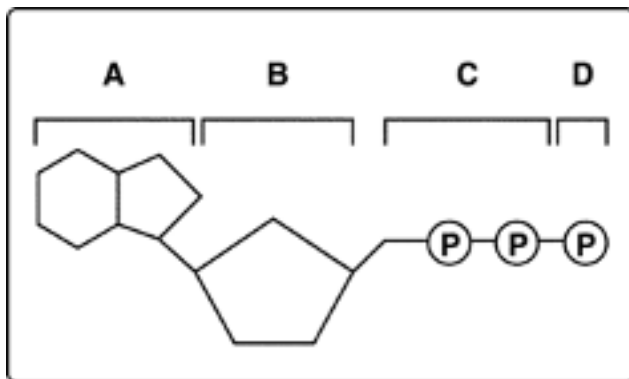
Question 8 (1 point)

A nitrogen base in ATP is

- a Ribose
- b Phosphate group
- c Adenine
- d Chemical Energy

Question 9 (1 point)

Use Figure 2.1 below to answer the following question. Which part of the molecule is ribose?



- a A
- b B
- c C
- d D

Question 10 (1 point)

In which structure, ATP or ADP, is more energy stored? Where is the energy stored?

- a ATP, in the chemical bonds
- b ADP, in the phosphate groups
- c ATP, in the phosphate groups

d ADP, in the chemical bonds

Question 11 (1 point)

Which molecules are contained in both ATP and ADP?

- a proteins and ADP only
- b Adenine and phosphate groups only
- c Adenosine and phosphate groups
- d Cytosine and phosphate groups

Question 12 (1 point)

What is the structural difference between ATP and ADP?

- a ATP has an adenine molecule and two phosphate groups attached. ADP has an adenine and three phosphate groups.
- b ATP has an adenosine molecule and two phosphate groups attached. ADP has an adenosine and three phosphate groups.
- c ATP has an adenine molecule and three phosphate groups attached. ADP has an adenine and two phosphate groups.
- d ATP has an adenosine molecule and three phosphate groups attached. ADP has an adenosine and two phosphate groups.

Question 13 (1 point)

Why is the reactions of ATP and ADP considered to be a cycle?

- a Energy that is released in the bonds of the second and third phosphate groups can be restored again to be used later when the cell needs it. This continual adding and breaking of the bond makes it a cycle.
- b The removal of the adenine molecule and replacing of the adenine molecule provides energy for the cell. This continual adding and breaking of the adenine makes it a cycle.
- c The removal of all the phosphate groups and replacing of the phosphate groups provides energy for the cell. This continual adding and breaking of all the phosphate groups makes it a cycle.
- d None of the above is true.

Question 14 (1 point)

What takes place in the process of converting ADP to ATP?

- a A phosphate group breaks off, releasing energy which can be used by the cell.
- b Energy from the electron transport chain (ETC) allows a bond to be built between the second and a third phosphate group.
- c The adenosine breaks away from the phosphate groups providing energy for the cell.
- d Energy from the electron transport chain (ETC) allows a bond to be built between the first and a second phosphate group.

Question 15 (1 point)

What is the role of proteins in the release of energy stored in ATP?

- a Specialized proteins called polysaccharides break the bond between the 2nd and 3rd phosphate groups which releases the energy used by the cell.
- b Proteins release the energy stored in ATP by breaking off the adenosine molecule from the phosphate groups.

- c Proteins carry the energy to the nucleus which can be used there to make additional proteins
- d Specialized proteins called enzymes break the bond between the 2nd and 3rd phosphate groups which releases the energy used by the cell.

Question 16 (1 point)

What is the preferred energy source of cells?

- a nucleic acids
- b starch
- c ATP
- d Krebs Cycle

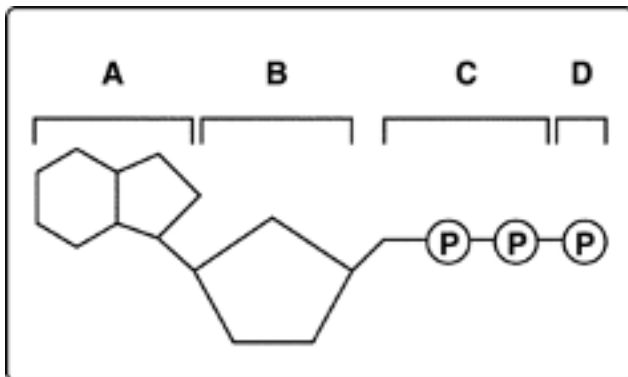
Question 17 (1 point)

How is energy released from an ATP molecule?

- a When the chemical bond between the 2nd and 3rd phosphate is formed.
- b When the chemical bond between the 2nd and 3rd phosphate is broken.
- c When the chemical bond between the adenine and ribose is broken.
- d When the electron transport chain (ETC) makes electrons.

Question 18 (1 point)

Which structures shown in Figure 2.1 make up an ATP molecule?



- a C and D
- b A, B, and C
- c A and B
- d A, B, C, and D