

Biology I Pre-Test

Overview

Introduction

The pre-test that follows is designed to identify areas where you can improve your skills before taking the MAAP-EOC exam in Biology I. This pre-test has 60 questions in various forms. These questions may be similar to the ones you will see on the actual test.

The MAAP-EOC Exam for Biology I

The actual MAAP-EOC exam may be given online and may have a variety of different test questions. Read each question carefully. Some questions may have multiple correct answers, so consider each of the answer choices when making multiple selections.

Scoring

The following pre-test can be used as practice for the MAAP-EOC exam in Biology I, but it is primarily a diagnostic tool to help you identify which skills you can improve in order to prepare better for the actual exam. Any pre-test question answered incorrectly may identify a skill needing improvement or mastery. Review the corresponding skill(s) indicated in the Pre-Test Evaluation Chart by reading the instructional material on the given pages and completing the practice exercises and reviews. The Pre-Test Evaluation Chart is found on page Pre-32. By reviewing each skill, you will improve mastery of the material to be tested on the MAAP-EOC exam and potentially increase the score you receive on that exam.

On this pre-test, each correct response counts as one point for a total of 68 points. If a question asks for more than one correct response, be sure that you select only the correct number of responses. Erase completely any marks not intended as an answer choice.

Biology I Pre-Test Question Types

The questions below are examples of the types of question you will see in this pre-test. Be sure you understand how to answer each type.

Most questions will be multiple choice. For multiple choice questions, be sure to select only one answer choice.

EXAMPLE 1

MULTIPLE CHOICE, select one answer choice.

Study the diagram below.



This diagram models which of the following molecules?

- Ⓐ RNA
- Ⓑ DNA
- Ⓒ a protein
- Ⓓ a carbohydrate

Some questions will be multiple select with more than one correct answer choice. Read each question carefully and select only the number of answer choices indicated by the question. Marking more than the specified number of correct answers will result in a score of zero for that question. For example, if the question indicates two correct answers but you choose three, you will score a zero on that question. Partial credit may be given, however, for each correct answer choice that you choose. For example, the question indicates two correct answers, and you choose one correct answer choice and one incorrect answer choice. You will be given partial credit for your correct choice.

EXAMPLE 2

MULTIPLE SELECT, select more than one answer choice depending on the specific question.

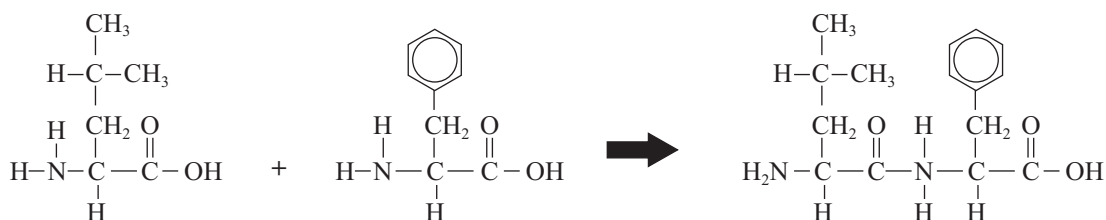
Which three elements are commonly found in nearly all macromolecules?

- Ⓐ carbon
- Ⓑ phosphorus
- Ⓒ nitrogen
- Ⓓ hydrogen
- Ⓔ sulfur
- Ⓕ oxygen

4. Within the scientific community, there has been some ongoing debate as to whether or not viruses represent living organisms. The debate hinges on the definition of life. All of the following describe the characteristics of viruses. Which two characteristics of viruses give the best support that viruses could be classified as living organisms?

- (A) They are surrounded by a protein coat.
- (B) They contain genetic information in the form of either DNA or RNA.
- (C) They are specific in the type of cell they can infect.
- (D) They evolve over time through mutations in their genetic code.
- (E) They do not seek food or energy to grow and develop on their own.

5. The following question has two parts. The graphic below models a dehydration synthesis reaction that is occurring in the ribosomes of a cell. Study the reaction carefully. First, answer Part A. Then, answer Part B.



PART A

Which of the following correctly describes the reactants and product?

- (A) Two monosaccharides are being combined to form a disaccharide.
- (B) Fatty acids are being combined to form a phospholipid molecule.
- (C) Nucleotides are being combined in the process of forming a molecule of RNA.
- (D) Amino acids are being combined in the process of forming a protein.

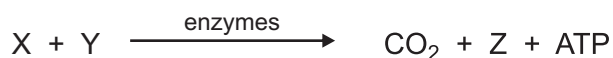
PART B

Which evidence from the model best support your answer?

- (A) Amino acids and proteins contain nitrogen.
- (B) Fatty acids contain a carboxyl group, -COOH .
- (C) Monosaccharides and carbohydrates contain the elements of carbon, hydrogen, and oxygen.
- (D) Nucleotides contain a sugar, a phosphate group, and a nitrogen-containing base.

GO ON

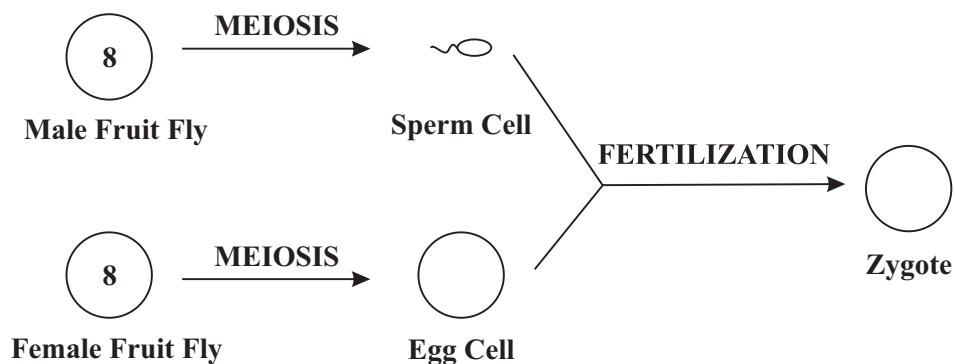
24. Study the chemical reaction shown below that creates carbon dioxide as a product and releases energy in the form of ATP. X, Y, and Z represent unknown compounds.



Which two compounds could represent X and Y in this reaction?

- (A) glucose ($\text{C}_6\text{H}_{12}\text{O}_6$)
- (B) oxygen (O_2)
- (C) water (H_2O)
- (D) phosphate (PO_4^{-3})
- (E) hydrogen (H_2)

25. Fruit flies have 8 chromosomes in their somatic cells. The diagram below shows the results of meiosis and fertilization in fruit flies.



After meiosis is complete, how many chromosomes will be in the sperm cell?

- (A) 2
- (B) 4
- (C) 8
- (D) 16

GO ON

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43. A biologist has found what he believes to be a new species of fish. He identifies the following gene sequence in the newly discovered fish and compares it to the gene sequence of four other fish species.

Newly Discovered Species: 5' – CCA AGG CAT GGT CCT GAC TTT ACT – 3'

Species	DNA Base Sequence
1	5' – CAA AGC CTT GGT CCT GAC TTT ACT – 3'
2	5' – CAA AGG CAT GGT CCT GAC TTT ACT – 3'
3	5' – CAA AGG CAT GGT CCC GAC CTT ACT – 3'
4	5' – CCA AGG CTT GGT CTT GAC CTT ACT – 3'

Based on gene sequence homology, which species in the table is most closely related to the newly discovered species?

- (A) species 1
- (B) species 2
- (C) species 3
- (D) species 4

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44. Female sockeye salmon will lay an average of 3,500 eggs during a spawning season. Only an average of 25% of these eggs will hatch into fry (baby fish), and only two to three of those fry will survive and mature into adult salmon that reproduce in the future. How does the overproduction of salmon eggs allow natural selection to act upon sockeye salmon populations?

- (A) Only the fittest fry survive to eventually reproduce.
- (B) The female salmon choose only the most aggressive males to fertilize her eggs.
- (C) The unhatched eggs become food for other species.
- (D) Most of the fry are an integral part of the freshwater food web by supplying nutrients to other predators.

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45. Which of the following might be studied as a part of a marine ecosystem but would not be included if studying only a marine community?

- (A) the number of different species of fish
- (B) water salinity and temperature
- (C) the size of a particular population
- (D) producers, such as algae and other phytoplankton

GO ON

Biology I

Pre-Test

Evaluation Chart

Circle the questions you answered incorrectly on the chart below, and review the corresponding sections in the book. Read the instructional material, do the practice exercises, and take the section review tests at the end of each section.

If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):
1	1.1, 2.1	21	15.1, 15.2, 15.3	41	6.3
2	2.4	22	4.2, 4.5	42	11.1, 11.3, 11.4, 11.6
3	5.4, 5.5, 5.6	23	8.1, 8.2, 8.4	43	13.3
4	1.1, 2.6	24	4.3	44	11.1
5	1.2, 1.5, 1.8	25	5.4, 5.5	45	14.1
6	1.7, 6.3	26	5.4, 5.5, 5.6	46	12.3
7	1.6	27	7.1	47	14.2
8	2.3, 2.4	28	8.2, 9.1	48	11.6, 11.7
9	2.3	29	15.1, 15.2	49	17.1
10	2.2, 2.4	30	8.2, 9.1	50	16.4
11	3.2	31	8.1, 8.2, 8.5, 9.4	51	14.2
12	2.1	32	8.1, 8.2, 9.3, 9.4	52	16.1
13	2.5	33	6.3, 7.1	53	4.3, 4.4
14	3.4	34	10.3, 10.4	54	17.3
15	4.3	35	6.1, 6.3	55	8.1, 8.2
16	3.3	36	7.2	56	5.1, 5.3
17	5.1	37	13.1	57	14.3, 15.4
18	5.1, 6.1, 6.2	38	6.3	58	2.6
19	5.1, 5.2	39	10.3	59	5.1, 5.3, 5.6
20	4.1	40	11.1, 11.3, 11.4	60	8.1, 8.2, 8.3, 8.4