Name: _____ Class: _____ Date: _____ ID: B

MYP Exam One Formatives

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 1. For most ecosystems ____ is (are) the ultimate source of energy, and energy leaves the ecosystem in the form of ____.
a. sunlight; heat
b. heat; light
c. plants; animals
d. plants; heat
e. producers; consumers

____ 2. What is a localized group of organisms that belong to the same species?
a. biosystem
b. community
c. population
d. ecosystem
e. organ system

____ 3. There are approximately ____ identified and named species.
a. 1,800
b. 180,000
c. 1,800,000
d. 18,000,000
e. 180,000,000

____ 4. Which of these is a deduction?
a. My car won't start.
b. My car's battery is dead.
c. My car is out of gas.
d. I lost my car key.
e. If I turn the key in the ignition while stepping on the gas pedal, then my car will start.

____ 5. Which of the following is reflective of the phrase "the whole is greater than the sum of its parts"?
a. high-throughput technology
b. emergent properties
c. natural selection
d. reductionism
e. feedback regulations

____ 6. Once labor begins in childbirth, contractions increase in intensity and frequency until delivery. The increasing labor contractions of childbirth are an example of
a. a bioinformatic system.
b. positive feedback.
c. negative feedback.
d. feedback inhibition.
e. both C and D

____ 7. All of the following membrane activities require energy from ATP hydrolysis *except*
a. facilitated diffusion.
b. active transport.
c. Na^+ ions moving out of the cell.
d. proton pumps.
e. translocation of potassium into a cell.

____ 8. A controlled experiment is one in which
a. the experiment is repeated many times to ensure that the results are accurate.
b. the experiment proceeds at a slow pace to guarantee that the scientist can carefully observe all reactions and process all experimental data.
c. there are at least two groups, one of which does not receive the experimental treatment.
d. there are at least two groups, one differing from the other by two or more variables.
e. there is one group for which the scientist controls all variables.

____ 9. Which of these is an example of an organelle?
a. chloroplast
b. muscle
c. epidermis
d. intestine
e. maple leaf

____ 10. The movement of a substance across a biological membrane against its concentration gradient with the help of energy input is
a. diffusion.
b. active transport.
c. osmosis.
d. facilitated diffusion.
e. exocytosis.

____ 11. Which of the following properties or processes do we associate with living things?
a. evolutionary adaptations
b. energy processing
c. responding to the environment
d. growth and reproduction
e. all of the above

____ 12. The main difference(s) between facilitated diffusion and active transport is (are)
a. facilitated diffusion moves substances down their concentration gradient and active transport moves them against their gradient.
b. facilitated diffusion does not rely on cellular energy and active transport does.
c. facilitated diffusion uses channel or carrier proteins and active transport does not.
d. A and B only
e. A, B, and C

____ 13. Which of these is a correct representation of the hierarchy of biological organization from least to most complex?
a. organelle of a stomach cell, digestive system, large intestine, small intestine, intestinal tissue, organism
b. organelle of an intestinal cell, digestive system, small intestine, large intestine, intestinal tissue, organism
c. molecule, intestinal cell organelle, intestinal cell, intestinal tissue, digestive system, organism
d. molecule, small intestine, large intestine, intestinal tissue, digestive system, organism
e. molecule, digestive system, digestive cell organelle, small intestine, large intestine, intestinal cell, organism

____ 14. Plants convert the energy of sunlight into
a. the energy of motion.
b. carbon dioxide and water.
c. the potential energy of chemical bonds.
d. minerals.
e. kinetic energy.

____ 15. What is a hypothesis?
a. the same thing as an unproven theory
b. a tentative explanation that can be tested and is falsifiable
c. a verifiable observation sensed directly, or sensed indirectly with the aid of scientific instrumentation
d. a fact based on qualitative data that is testable
e. a fact based on quantitative data that is falsifiable

____ 16. When blood glucose level rises, the pancreas secretes insulin, and as a result blood glucose level declines. When blood glucose level is low, the pancreas secretes glucagon, and as a result blood glucose level rises. Such regulation of blood glucose level is the result of
a. catalytic feedback.
b. positive feedback.
c. negative feedback.
d. bioinformatic regulation.
e. both A and B

____ 17. Which of the following would likely move through the lipid bilayer of a plasma membrane most rapidly?
a. CO_2
b. an amino acid
c. glucose
d. K^+
e. starch

____ 18. Why is it important that an experiment include a control group?
a. The control group is the group that the researcher is in control of; it is the group in which the researcher predetermines the nature of the results.
b. The control group provides a reserve of experimental subjects.
c. A control group is required for the development of an "if; then" statement.
d. A control group assures that an experiment will be repeatable.
e. Without a control group, there is no basis for knowing if a particular result is due to the variable being tested or to some other factor.

____ 19. Which of the following types of molecules are the major structural components of the cell membrane?
a. phospholipids and cellulose
b. nucleic acids and proteins
c. phospholipids and proteins
d. proteins and cellulose
e. glycoproteins and cholesterol

____ 20. The lowest level of biological organization that can perform all the activities required for life is the
a. organelle-for example, a chloroplast.
b. cell-for example, a skin cell.
c. tissue-for example, nervous tissue.
d. organ system-for example, the reproductive system.
e. organism-for example, an amoeba, dog, human, or maple tree.

____ 21. All eukaryotes belong to which group(s)?
a. domain Bacteria
b. domain Archaea
c. domain Eukarya
d. kingdom Protista
e. both C and D

____ 22. As a result of photosynthesis, plants release ____ into the atmosphere.
a. methane
b. carbon dioxide
c. water
d. minerals
e. oxygen

____ 23. Which of the following statements is *correct about diffusion?*
a. It is very rapid over long distances.
b. It requires an expenditure of energy by the cell.
c. It is a passive process in which molecules move from a region of higher concentration to a region of lower concentration.
d. It is an active process in which molecules move from a region of lower concentration to one of higher concentration.
e. It requires integral proteins in the cell membrane.

____ 24. Which of the following is (are) true of natural selection?
a. requires genetic variation
b. results in descent with modification
c. involves differential reproductive success
d. B and C only
e. A, B, and C

____ 25. Which of the following is the main source of energy for producers such as plants and other photosynthetic organisms?
a. sunlight or solar energy
b. carbon dioxide or kinetic energy
c. heat or thermal energy
d. chemicals or chemical energy
e. both B and D

____ 26. Which of the following sequences represents the hierarchy of biological organization from the least to the most complex level?
a. organelle, tissue, biosphere, ecosystem, population, organism
b. cell, community, population, organ system, molecule, organelle
c. organism, community, biosphere, molecule, tissue, organ
d. ecosystem, cell, population, tissue, organism, organ system
e. molecule, cell, organ system, population, ecosystem, biosphere

____ 27. What is the primary reason for including a control group within the design of an experiment?
a. To ensure that the results obtained are due to a difference in only one variable
b. To ensure that the experimenter can perform a more complete statistical analysis
c. To demonstrate in what way the experiment was performed incorrectly
d. To accumulate additional facts that can be reported to other scientists
e. To test the effect of more than one variable

____ 28. Which of the following statements concerning prokaryotic and eukaryotic cells is *not* correct?
a. Prokaryotic cells lack a membrane-bound nucleus.
b. Prokaryotic cells contain small membrane-enclosed organelles.
c. Eukaryotic cells contain a membrane-bound nucleus.
d. DNA, or deoxyribonucleic acid, is present in both prokaryotic cells and eukaryotic cells.
e. DNA or deoxyribonucleic acid is present in the nucleus of eukaryotic cells.

____ 29. The selective permeability of biological membranes is dependent on which of the following?
a. the type of transport proteins that are present in the membrane
b. the lipid bilayer being permeable to primarily small, nonpolar molecules
c. the types of carbohydrates on the surface of the membrane
d. A and B only
e. A, B, and C

____ 30. What are the two classifications of prokaryotes?
a. domain Bacteria and domain Eukarya
b. domain Archaea and kingdom Monera
c. domain Eukarya and kingdom Monera
d. domain Bacteria and kingdom Monera
e. domain Bacteria and domain Archaea

____ 31. According to Charles Darwin, organisms of a particular species are adapted to their environment when they
a. possess non-inheritable traits that enhance their survival in the local environment.
b. possess non-inheritable traits that enhance their reproductive success in the local environment.
c. possess non-inheritable traits that enhance their survival and reproductive success in the local environment.
d. possess inheritable traits that enhance their survival and reproductive success in the local environment.
e. possess inheritable traits that decrease their survival and reproductive success in the local environment.

____ 32. When applying the process of science, which of these is tested?
a. a question
b. a result
c. an observation
d. a prediction
e. a hypothesis

____ 33. Which of these provides evidence of the common ancestry of all life?
a. the ubiquitous use of catalysts by living systems
b. the universality of the genetic code
c. the structure of the nucleus
d. the structure of cilia
e. the structure of chloroplasts

____ 34. Which of the following are characteristics shared by members of both domain Bacteria and domain Archaea?
a. cytosol
b. nucleus
c. DNA
d. A and C only
e. A, B, and C

____ 35. What kinds of molecules pass through a cell membrane most easily?
a. large and hydrophobic
b. small and hydrophobic
c. large polar
d. ionic
e. monosaccharides such as glucose

MYP Exam One Formatives
Answer Section

MULTIPLE CHOICE

1.	ANS: A	TOP: Concept 1.1
2.	ANS: C	TOP: Concept 1.1
3.	ANS: C	TOP: Concept 1.3
4.	ANS: E	TOP: Concept 1.5
5.	ANS: B	TOP: Concept 1.2
6.	ANS: B	TOP: Concept 1.2
7.	ANS: A	TOP: Concept 7.4
8.	ANS: C	TOP: Concept 1.5
9.	ANS: A	TOP: Concept 1.1
10.	ANS: B	TOP: Concept 7.4
11.	ANS: E	TOP: Overview
12.	ANS: E	TOP: Concept 7.4
13.	ANS: C	TOP: Concept 1.1
14.	ANS: C	TOP: Concept 1.1
15.	ANS: B	TOP: Concept 1.5
16.	ANS: C	TOP: Concept 1.2
17.	ANS: A	TOP: Concept 7.2
18.	ANS: E	TOP: Concept 1.5
19.	ANS: C	TOP: Concept 7.1
20.	ANS: B	TOP: Concept 1.1
21.	ANS: C	TOP: Concept 1.3
22.	ANS: E	TOP: Concept 1.1
23.	ANS: C	TOP: Concept 7.2
24.	ANS: E	TOP: Concept 1.4
25.	ANS: A	TOP: Concept 1.1
26.	ANS: E	TOP: Concept 1.1
27.	ANS: A	TOP: Concept 1.5
28.	ANS: B	TOP: Concept 1.1
29.	ANS: D	TOP: Concept 7.2
30.	ANS: E	TOP: Concept 1.3
31.	ANS: D	TOP: Concept 1.4
32.	ANS: D	TOP: Concept 1.5
33.	ANS: B	TOP: Concept 1.3
34.	ANS: D	TOP: Concept 1.3
35.	ANS: B	TOP: Concept 7.2