Exam

Name_____

Per.7

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Specifically, molecules of chlorophyll are located in membranes of sacs called 1) _____
A) vesicles.
B) grana.
C) stroma.
D) thylakoids.
E) cristae.

2) What is the role of water in photosynthesis? 2) _____
A) to maintain turgor pressure
B) to provide H_2
C) to provide oxygen
D) to provide electrons
E) all of these

3) Imagine a scientist discovers a mutant plant seedling that appears to lack stomata. What would be the effect of this? 3) _____
A) CO_2 would not be able to enter as a reactant for photosynthesis.
B) Visible wavelengths of light would be unable to reach the chloroplasts.
C) Additional ATP would be produced by the cells of the plant seedling and the plant would grow taller.
D) Water would not be able to enter the plant cells.

4) The primary function of the light reactions of photosynthesis is 4) _____
A) to produce energy-rich ATP and NADPH.
B) to produce NADPH used in respiration.
C) to produce energy-rich glucose from carbon dioxide and water.
D) to use the ATP to make glucose.
E) to convert light energy to the chemical energy of lipids.

5) The products of photosynthesis are 5) _____
A) glucose and oxygen.
B) carbon dioxide, water, and energy.
C) glucose and carbon dioxide.
D) glucose and water.
E) carbon dioxide, chlorophyll, and oxygen.

6) Which sequence accurately reflects the flow of electrons in photosynthesis? 6) _____
A) Photosystem I → Photosystem II → H_2O → NADP
B) H_2O → Photosystem II → Photosystem I → NADP
C) H_2O → Photosystem I → Photosystem II → NADP
D) Photosystem II → Photosystem I → NADP → H_2O
E) Photosystem I → Photosystem II → NADP → H_2O

7) You are experimenting with different types of lighting for your indoor green plants. Which of the following colors of light will be most effective? 7) _____

A) red-green
B) green
C) orange-yellow
D) red-blue
E) blue

8) Which of the following is TRUE about the light-dependent reactions? 8) _____

A) Photosystem II generates ATP, while photosystem I generates NADPH.
B) Photosystem I generates ATP, while photosystem II generates NADPH.
C) ATP is the final electron acceptor.
D) NADPH and ATP are both synthesized on an electron transport chain that connects photosystem I and photosystem II.

9) Which process of photosynthesis is linked to the production of ATP? 9) _____

A) fixing of carbon
B) splitting of a water molecule
C) synthesis of O_2
D) generation of NADPH
E) photosystem II

10) The vast majority of chloroplasts found in a leaf are located where? 10) _____

A) cuticle
B) epidermis
C) stroma
D) mesophyll
E) vascular bundles

11) Suppose you are studying photosynthesis in a research lab. You grow your plants in a chamber with a source of water that has a radioactively labeled oxygen atom. What photosynthetic product will be radioactive? 11) _____

A) oxygen B) glucose C) ATP D) RuBP E) NADPH

12) Light-dependent photosynthetic reactions produce 12) _____

A) Glucose, ATP, O_2.
B) ATP, NADPH, CO_2.
C) ATP, NADPH, O_2.
D) ATP, NADPH, H_2O.
E) Glucose, ATP, CO_2.

13) You are carrying out an experiment on an aquatic plant in your fish tank. You decide to expose the plant to varying wavelengths of light to determine which wavelength is best for the light dependent reactions. Which of the following products could you measure to determine what wavelength of light is optimum for the light dependent reactions? 13) _____

A) oxygen bubbles B) carbon dioxide
C) sucrose D) water molecules

14) Which of the following provides O_2 as an end product? 14) _____

A) light-independent reaction
B) glycolysis
C) light-dependent reaction
D) phosphorylation
E) cellular respiration

15) You are carrying out an experiment on several aquatic plants in your fish tank. You decide to expose 2 of the plants to green light and 2 of the plants to blue light. You want to determine which type of light is best for the light dependent reactions so you decide to measure the amount of oxygen bubbles produced to reach your conclusions. Which of the following results would be expected? 15) _____

A) There would be more bubbles from the plants in green light compared to blue light.
B) There would be more bubbles from the plants in blue light compared to green light.
C) There would be the same number of bubbles from plants in either blue or green light.
D) There would be no bubbles produced in either situation.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

16) The majority of the leaf's chloroplasts are found in the mesophyll cells. True or False? 16) _____

17) The grana are disk-shaped, interconnected membranous sacs embedded in the stroma that form thylakoids when stacked on one another. True or False? 17) _____

18) The carotenoids and other accessory pigments in the chloroplast help harvest light energy toward the reaction center chlorophyll molecules. True or False? 18) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

19) _____ is the main light-capturing molecule in chloroplasts and is responsible for giving most leaves their characteristic green color. 19) _____

20) Many plants have evolved leaves that have adjustable pores, called _____, which allow for gas exchange and water loss. 20) _____