

Test – Lesson 18 – Plants – Answer Key

1. Algae are \_\_\_\_\_.

**A. protists**

B. early plants

C. multicellular eukaryotes

D. forms of euglenia

2. Algae reproduce by what two methods?

**A. conjugation and meiosis**

B. binary fission and mitosis

C. mitosis and meiosis

D. meiosis and transduction

3. Algae developed sexual reproduction in which \_\_\_\_\_.

A. gametophytes would release their gametes into water to find a compatible mate

B. their sporophytes would form multicellular diploid organisms

**C. sporophytes undergo meiosis to form gametes**

D. gametophytes undergo meiosis to form sporophytes

4. Male gametes of a plant are found in \_\_\_\_\_.

A. oogonia

B. sporophytes

**C. antheridia**

D. rhizoids

5. Stoneworts are a form of green algae that evolved rhizoids as a way to prevent \_\_\_\_\_.

**A. desiccation**

B. disease

C. overexposure to sunlight

D. parasites

6. Charales, a form of green algae, adapted to periods of life above the water line by \_\_\_\_\_.

A. evolving leaves

B. evolving stems

C. evolving roots

**D. encasing its gametes in waterproof pouches**

7. Living on land had the advantage of \_\_\_\_\_.

**A. more access to carbon dioxide**

B. more infrared light

C. more access to glucose

D. more access to oxygen

8. Problems moving plants onto land include all but one of the following:

- A. getting their gametes to find each other
- B. overexposure to red photons of light**
- C. getting water to their photosynthetic cells
- D. getting glucose from its photosynthetic cells to the rest of the plant

9. Which one is not necessary in a true plant?

- A. the presence of chloroplasts
- B. cell walls containing cellulose
- C. cuticle and guard cells
- D. allowing zygotes to develop free of the gametophyte**

10. The first true land plants were the bryophytes. Which adaptation did the Bryophytes not evolve?

- A. sporopollenin
- B. cuticle
- C. stomata
- D. sporophytes**

11. Bryophytes include the mosses. Which statement about mosses is true?

- A. The tallest structure of a moss is its gametophyte.
- B. Mosses encase their pollen in waterproof jackets of sporopollenin.**
- C. Gametes inside pollen grains do not have to swim through water to the female gamete.
- D. Their male gametes mature inside archegonia and their female gametes inside antheridia.

12. Bryophytes include liverworts, mosses, and hornworts. Which statement about bryophytes is not true?

- A. The gametophytes and the sporophytes are both multicellular.
- B. Both the sporophyte and the gametophyte are photosynthetic.**
- C. Bryophytes reproduce by alternating generations.
- D. Bryophytes are all embryotes.

13. Which statement about bryophytes is not true?

- A. Bryophyte sporophytes extend upward from the gametophytes.
- B. Sporophytes are photosynthetic.**
- C. Bryophyte zygotes remain embedded in archegonia.
- D. Gametophytes are dominant over sporophytes.

14. Tracheophytes evolved all of the following over and above the bryophytes except\_\_\_\_\_.

- A. more spores
- B. more height
- C. xylem and phloem
- D. stiffer protein for its stems**

15. The tracheophytes – the club mosses, ferns, and horsetails -- were the first plants to develop wood in their stems and increase their height. Which statement is not true? The increased height of tracheophytes \_\_\_\_\_.

- A. allowed the gametes inside their pollen to fertilize female gametes without having to swim through water**
- B. allowed the pollen to spread over more area
- C. forced tracheophytes to evolve pipes to carry water and nutrients up and down the stems
- D. allowed lignin to strengthen the xylem and phloem

16. Which statement about xylem and phloem is not true?

- A. Xylem carries water up; phloem carries it down.
- B. Xylem consists of small vessel members and large tracheids.**
- C. Tracheids are connected end to end with pores.
- D. Vessel members are connected to each other with perforation plates.

17. Which statement about phloem tubes is true?

- A. Phloem tubes are smaller but more numerous than xylem tubes.
- B. Phloem tube walls are made up of living cells.**
- C. Phloem tubes have sieve plates along the walls.
- D. Phloem tubes provide a route for male gametes to swim to female gametes.

18. Which statement about gymnosperms is not true?

- A. Gymnosperms include conifer trees.
- B. The gametes inside their pollen do not swim to the female gametes.
- C. Every ovum is surrounded by a store of food in its endosperm even if it is not fertilized by a pollen grain.
- D. The male and female gametes are positioned close to each other to ensure pollination.**

19. Which statement is not true about gymnosperms?

- A. Gymnosperms include ginkgo trees, conifers, and cycads.
- B. Gymnosperms evolved wood for greater height to spread their pollen.
- C. Periods of rainfall allow pollen grains to float to female gametes lying dormant within gymnosperm cones.**
- D. Gymnosperms are considered non-flowering seed plants.

20. Which statement about wood is true?

- A. Wood represents secondary growth of the phloem.
- B. Wood is made up of centrally located sapwood surrounded by dark-stained heartwood.
- C. Wood is made by the cambium layer.**
- D. Wood consists of compressed but living heartwood.

21. The main force allowing water molecules to climb hundreds of feet in a tree trunk is \_\_\_\_\_.

- A. capillary action
- B. transpiration and hydrogen bonding**
- C. root pressure
- D. lower atmospheric pressure at leaf level

22. Flow of water from the xylem into the phloem occurs as a result of \_\_\_\_\_.

- A. movement of glucose from the leaves into the phloem**
- B. movement of glucose from the phloem into the companion cells
- C. movement of glucose from the leaves into the xylem
- D. movement of glucose from the xylem into phloem

23. Companion cells \_\_\_\_\_.

- A. use active transport to transport glucose into leaves
- B. use active transport to transport glucose into phloem
- C. use active transport to transport glucose into roots**
- D. use active transport to transport glucose into xylem

24. Water entering the roots reaches the xylem by \_\_\_\_\_.

- A. by symplastic flow through the Casparian strip**
- B. by apoplastic flow through the Casparian strip
- C. by apoplastic flow through plasmodesma
- D. by symplastic and apoplastic flow through the Casparian strip

25. Which statement about angiosperms is true?

- A. Angiosperms surround a fertilized zygote with a fruit for the zygote to feed on as it grows.
- B. Angiosperms allow insects seeking nectar in a flower to brush up against pollen on the stigma and deliver it to the anther.
- C. Each pollen grain in an angiosperm sends two nuclei into the ovary of a flower.**
- D. Angiosperms produce seeds with starchy, edible endosperm around the bran.

26. Which statement about fruits is true?

- A. The fruit of a coconut is the white meat inside the hard shell.
- B. The fruit of a corn kernel is the yellow part of kernel.
- C. The fruit of cereal grains is flattened into a layer inside the seed coat.
- D. The purpose of fruit is to protect the seed and aid in its dispersal.**

27. Which statement about seeds and fruit is true?

- A. The endosperm is part of the seed.**
- B. The external layer of the endoderm is part of the fruit.
- C. The bran is part of the fruit.
- D. The hard shell of a peach pit is part of the seed.