Biology 112 – Kingdoms Protista and Fungi Review

***Kingdom Protista:***

**p. 520**

#1. Fungus-like protists are similar to Fungi because they are eukaryotic, multicellular and heterotrophic. When observed in their reproductive stage, they are also non-motile, like fungi. They are different, however, because they do not only have a reproductive stage – when in their feeding stage, they are motile (unlike fungi, which never are). Fungus-like protists also lack chitin in their cell walls, and do not produce spores or have hyphae.

**p. 523**

#1. C

#9. B

#11. The categories of animal-like, plant-like and fungus-like can be useful if knowing the method by which they obtain their nutrients in necessary or useful. The categories of animal-like and fungus-like, however, can be confusing since both are technically heterotrophic, but fungus-like protists are more specifically called scavengers.

#13. Ciliates move using thousands of tiny hair-like structures known as cilia. These cover the entire outer body of the organism. Sarcodines move using pseudopods, or extensions of cytoplasm that protrude from the cell wall in many directions.

#15. Algae are plant-like protists who obtain nutrition by photosynthesis. They are the only autotrophic protists.

#18. The three phyla of multicellular protists are GREEN ALGAE (ex. Volvox), BROWN ALGAE (ex: Kelp) and RED ALGAE (ex: Dulse).

#21. Pollutants in the water may be used by fire algae to grow quickly. When this happens, and algae bloom occurs, and the high concentration of fire algae in the water can release large amounts on toxins making the water unsafe to swim in or drink from, and these toxins can get stored in the tissues of shellfish, making these animals inedible.

***Kingdom Fungi:***

**p. 529**

#1. All fungi are multicellular, eukaryotic, non-motile and heterotrophic. They have cell walls that contain chitin. They all reproduce using spores and grow using a structure known as hyphae.

**p. 536**

#1. A) Molds: Have hyphae that lack cell walls dividing cells from one another, resulting in unusually long cells containing many nuclei.

B) Sac Fungi: Contain sac-like structures in which sexual spores are created.

C) Club Fungi: Contain sac-like structure in which sexual spores are created.

D) Imperfect Fungi: Do not create sexual spores, only asexual ones.

**p. 545**

#1. A

# 11. The cell walls of fungi contain a compound known as chitin, which is the same compound found in the exoskeleton of insects.

# 16. Fungi are divided into 4 groups, based on which structures they do or do not possess. See Answer to p. 536 #1 for more information on each group.

# 19. Yeasts are classified as sac fungi. Yeasts, like other sac fungi, have sac-like structures in which sexual spores are created.

# 32. Sexual spores ensure genetic diversity by always combining 2 parent’s DNA into a unique DNA strand, reducing the chances of the offspring having the same genetic defects as their parents. These spores require 2 parents, however, which means time and energy is spent looking for “mates”.

Asexual spores can be created without another parent, so are a good form of reproduction in a pinch. They help ensure the survival of a species by allowing for quick reproduction in the event of harsh environmental conditions, such as drought or frost. The offspring contain only 1 parent’s worth of DNA, and are therefore clones and have all the same genetic drawbacks as their parents. So, in other words, what would kill the parent, will also kill all of it’s offspring.