

## Introduction to Protozoa

### 1. Define:

**Cirri** – Cirri are tufts of cilia that may be found on the surfaces of some ciliated protozoa. They move in a coordinated fashion, and are used for walking and jumping rather than swimming.

**Trophozoite** – A trophozoite is an active animal-like cell, so the trophozoite stage or vegetative stage is the active form of a protozoan. Trophozoites may be observed to swim, feed, reproduce, etc. (and sometimes pose for cartoonists).

**Cytostome** – The cytostome is a "cell mouth" found on some types of protozoa (Cyte = cell, stoma = mouth). The cytostome is often located at the bottom of an oral funnel or groove, and cilia sweep food particles toward and into it. In some cases it appears on the cell surface where it can be aligned with large food particles. Protozoa take in food materials via endocytosis, and in many cases, this can only occur at the cytostome because other cell surfaces are covered by a tough pellicle.

**Contractile vacuoles** – Contractile vacuoles are osmoregulatory organelles that pump excess water out of cells. Contractile vacuoles fill with water via osmosis (during diastole), and contract (systole) to pump the water outward through the cell membrane. Their primary function appears to be protecting organisms living in hypotonic environments from cell lysis; however, they have also been shown to have excretory and circulatory function. Contractile vacuoles can often be observed within fresh-water protozoa such as *Paramecium*. Many types of protozoa have more than one.

**Schizogony** – Schizogony or multiple fission is a form of asexual reproduction that occurs within certain protozoa such as *Plasmodium*. During schizogony, the nuclear material of a cell is replicated multiple times, and many new cells are formed within one.

2. Chemoheterotrophs/ pathogens
3. Pseudopodia
4. Pseudopodia/ cilia/ cirri
5. Cilia, flagella, and pseudopodia can be used for both locomotion and food getting
6. Holozoic/ cytostome
7. Contractile vacuoles
8. Cyst/ trophozoites
9. Pellicle/ trichocysts
10. Binary fission/ conjugation/ syngamy
11. Matching letter sequence is - G, H, D, A, B, E, C, and F.

12. Cyst
13. Syngamy/ schizogony
14. Dysentery and encephalitis (primary amoebic meningoencephalitis)
15. *Giardia/ Trichomonas*
16. Sporozoite/ merozoite
17. *Plasmodium vivax* is a type of sporozoean (Sporozoan) transmitted by insect vectors; mosquitoes in the genus *Anopheles*. That portion of the protozoan life cycle occurring within a human host begins when a mosquito bites and introduces the sporozoites (haploid cells) into the bloodstream. The sporozoites enter deep tissues (liver) to begin their exo-erythrocytic stage. Some may persist there for many years. Eventually, the sporozoites enter the bloodstream and infect red blood cells (erythrocytes), thus beginning their erythrocytic stage. Within the RBCs the protozoa undergo schizogony (asexual reproduction) and give rise to many new cells called merozoites. When these are mature, the RBCs rupture, and the merozoites are released to infect other cells. After several generations, some of the merozoites become gametocytes which are picked up by a feeding mosquito. Within the mosquito the gametocytes undergo syngamy (sexual reproduction) to form zygotes (diploid cells). These grow within the mosquito gut and eventually undergo meiosis to form haploid sporozoites. When the mosquito feeds, the cycle begins again.
18. Insect vectors (Mosquitoes, tse tse flies and kissing bugs.)
19. *Naegleria*
20. *Entamoeba histolytica/ dysentery*