

## Protozoa

### **I- Choose the correct answer:**

**(12 Mark)**

1. \_\_\_\_\_ don't have locomotory organs, and move by gliding.  
a. Sporozoans      b. Amoeboides      c. Ciliates      d. Flagellates.
2. \_\_\_\_\_ has many monomorphic nuclei in its cytoplasm.  
a. *Euglena*      b. *Opalina*      c. *Paramecium*      d. *Amoeba*.
3. The final host of *Sarcocystis* is \_\_\_\_\_.  
a. sheep      b. frog      c. man      d. cattel
4. Holozoic nutrition is characterized by \_\_\_\_\_.  
a. formation of the food in the presence of carbon dioxide and sunlight.  
b. feeding by absorbing solution of decayed organic and inorganic substances.  
c. feeding on other organisms.      d. None of the previous.
5. Human or animal infection with \_\_\_\_\_ can result from ingestion of material contaminated with infected cat feces.  
a. Amoebiasis.      b. Giardiasis.      c. Toxoplasmosis      d. None of the previous.
6. Which of the following describes the function of a contractile vacuole in Protozoa?  
a. Site of food digestion.      b. Site for photosynthesis.  
c. Maintains osmotic balance by continuous water expulsion.  
d. All of the above.
7. Which protozoan is unique in that it is like a plant and also like an animal?  
a. *Euglena*      b. *Amoeba*      c. Ciliates      d. *Paramecium*
8. \_\_\_\_\_ protects the animal against unfavorable environmental condition.  
a. Food vacuole.      b. Contractile vacuole.      c. Cyst.      d. None of the previous.
9. Chief function of food vacuole is \_\_\_\_\_.  
a. temperature regulation      b. reproduction      c. digestion      d. osmoregulation
10. *Trichomonas* belongs to class \_\_\_\_\_.  
a. Sarcomastigophora.      b. Mastigophora      c. Pytomastigophorea.      d. Zoomastigophorea.
11. The most common method of sexual reproduction in the Protozoa is by  
a. conjugation.      b. multiple fission.      c. budding.      d. binary fission.
12. The most common method of asexual reproduction in the Protozoa is by  
a. conjugation.      b. gametangial contact.      c. autogamy.      d. binary fission.
13. Fever malaria in human is caused by  
a. *Plasmodium*.      b. *Trypanosoma*.      c. *Amoeba*.      d. *Ascaris*.

14. All of the following moves by pseudopodia EXCEPT \_\_\_\_\_.  
a. *Amoeba*.    b. *Entamoeba coli*.    c. *Entamoeba histolytica*.    d. *Trichomonas*.
15. Which protozoan reproduces by longitudinal binary fission?  
a. *Paramecium*.    b. *Amoeba*.    c. *Plasmodium*.    d. *Euglena*.
16. Sleeping sickness in human is caused by \_\_\_\_\_.  
a. trypanosomes.    b. amoeboids.    c. euglenoids.    d. ciliates.
17. The intermediate host of *Plasmodium* is \_\_\_\_\_.  
a. Tsetse fly.    b. *Anopheles*.    c. cattle.    d. cat.
18. Sarcodina contain \_\_\_\_\_.  
a. ciliates.    b. flagellates.    c. amoeboids.    d. sporozoans.
19. food vacuoles are present in  
a. *Amoeba*    b. *Entamoeba coli*    c. *Paramecium*    d. all of these.
20. *Entamoeba coli* can reproduce by  
a. budding.    b. autogamy.    c. conjugation.    d. binary fission.
21. \_\_\_\_\_ is a parasite of human urethra.  
a. *Giardia intestinalis*    b. *Trichomonas vaginalis*    c. *Opalina*    d. *Trypanosoma*
22. *Entamoeba histolytica* is found in human  
a. mouth cavity    b. stomach    c. large intestine    d. liver
23. Tsetse fly is the intermediate host of \_\_\_\_\_.  
a. *Plasmodium*.    b. *Amoeba*.    c. *Trypanosoma*    d. *Giardia*.
24. \_\_\_\_\_ is a universal and common inhabitant in the upper small intestine of man, monkey and pigs and cause giardiasis.  
a. *Trichomonas*    b. *Amoeba*    c. *Toxoplasma*    d. None of the previous

**II- Write about "three only" from the following (Illustrate your answers with diagrams): (12 Mark)**

1. Different species of *Trichomonas* and their habitat.
2. Conjugation in *Paramecium*.
3. *Sarcocystis* life cycle.
4. General characters of superclass Sarcodina.

*(With best wishes)*

I- Choose the best answer:

- 1-a 2-b 3-c 4-c 5-c 6-c 7- a 8-c 9-c 10-d 11-a 12-d  
 13- a 14-d 15- d 16- a 17-b 18-c 19-d 20-d 21-b 22-c  
 23-c 24-d

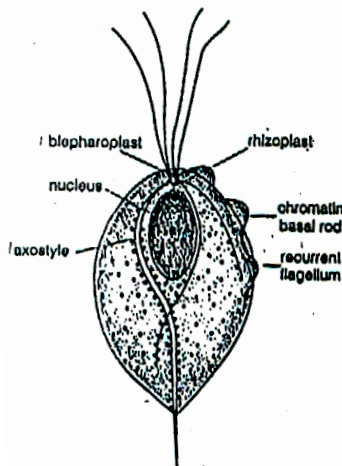
II- (1) Different species of *Trichomonas* and their habitat:

***Trichomonas vaginalis*:** This species lives in the female vagina or the male urethra or prostate. In females it is common (up to 40%) and may cause trichomonas vaginitis, with inflammation and discharge. In males, mild inflammation of the urethra may occasionally result.

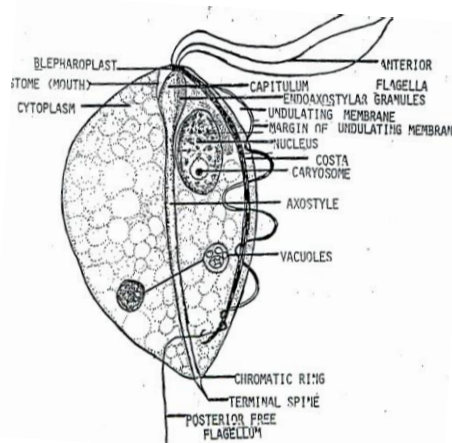
***Trichomonas foetus*:** A parasite of cattle and in pregnant cows it may lead to abortion. Probably all parasites are expelled with the aborted fetus and placenta, but males should be slaughtered because treatment is expensive.

***Trichomonas gallinae*:** A parasite of mouth, pharynx, oesophagus and crop of birds. In the young pigeons the parasite produces avian trichomoniasis, which is severe and may be fatal. The young birds get the infection from their parents during feeding.

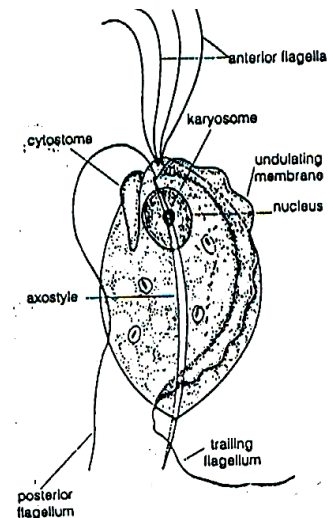
***Trichomonas hominis*:** this species inhabit the intestine of man, it is non pathogenic.



*Trichomonas vaginalis*



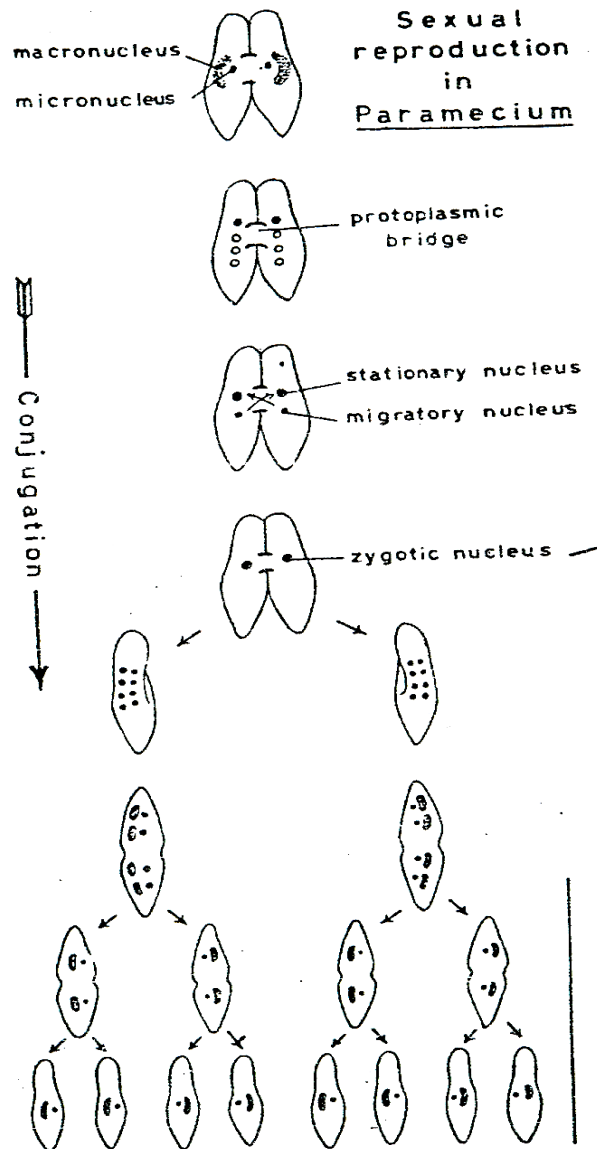
*Trichomonas foetus*



*Trichomonas hominis*

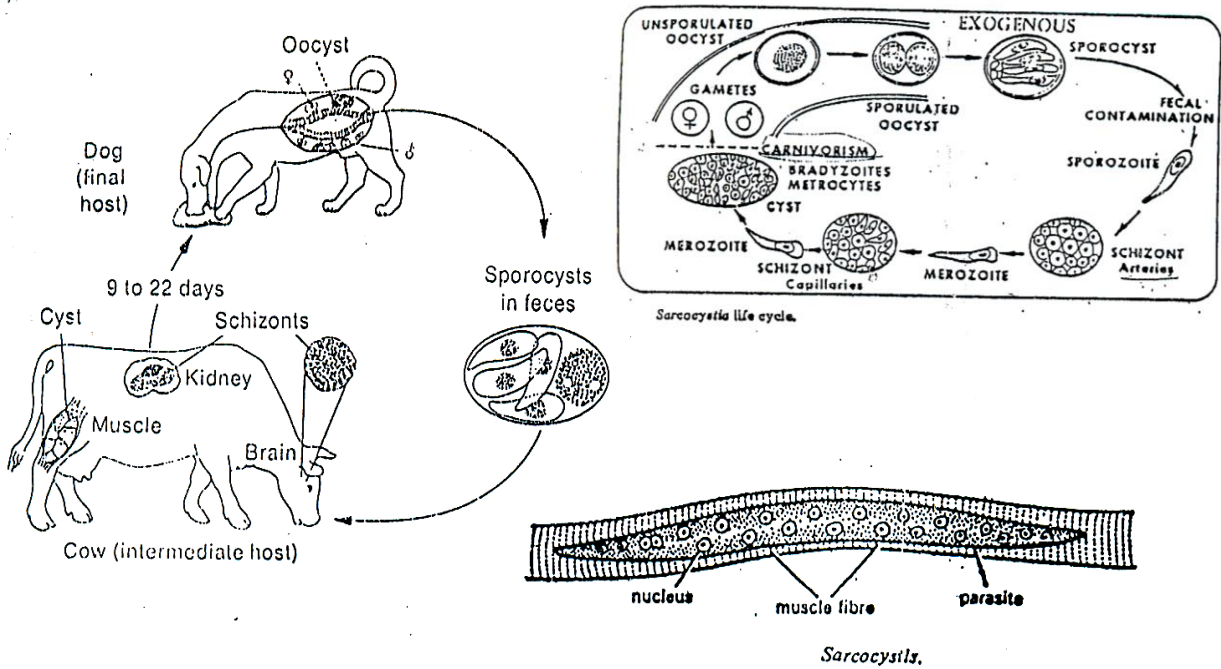
### III-(2) Conjugation in *Paramecium*:

Two individuals come in contact by their lower surfaces. The two macronuclei will disappear and the micronucleus of each individual divides mitotically two times, to give four nuclei, which three degenerate and the fourth divides with mitosis, to give two nuclei of which passes into the other individual. The two nuclei in each individual fuse together forming a zygote nucleus and the two individuals separate from each other. The fusion nucleus divides three times giving eight nuclei, three of them degenerate, and one of five the remaining nuclei divides into two small nuclei, then the body divides into two, each part with three nuclei of which one is small, the small nucleus divides also. Thus the animal gives four small individuals, each with a small nucleus which will form the macronucleus.



### III- (3) *Sarcocystis* life cycle:

*Sarcocystis* produces muscle cysts in intermediate host such as domestic herbivores (cattle, sheep, ....). Final (definitive) hosts are carnivores such as dogs, cats, ..... and man. They shed infectious sporocysts in their feces, from which herbivores become infected. Sarcocystosis can produce an acute, lethal disease in domestic animals and abortion in cattle. Some species are non-pathogenic. Sporocysts are noninfectious to definitive hosts. When herbivores get infected with sporocysts (sporozoites) multiplication first takes place by schizogony and endodyogeny in endothelial cells after some weeks, muscle cysts are formed. The cysts has a complex walls, many compartments and numerous banana-shaped merozoites. In carnivore's intestine after eating raw meat the zoites are set the develop micro and macrogametes, after fertilization, the zygote is surrounded by a wall and becomes an oocyst. Sporocysts are set free with feces containing four sporozoites.



## **II- (4) General characters of superclass Sarcodina:**

- Locomotion and feeding by pseudopodia.
- Body is amoeboid.
- Single nucleus.
- Nutrition is holozoic, Saprozoic.
- Reproduction mostly by binary fission.
- Most species are solitary and free-living, some species are parasitic.
- Some rhizopods develop a protective covering, called 'shell', composed of calcium carbonate.