

أوليات وطفيليات ٣٢٤ ح

أسئلة وأجوبة جزء الأوليات (نصف ورقة إمتحانية)

تيرم صيفى ٢٠١٦

كلية: العلوم

قسم: علم الحيوان

المستوى: الثالث

الشعبة: ميكروبيولوجى وكيمياء

تاريخ الإمتحان: ٢ / ٩ / ٢٠١٦

الممتحن: د/ داليا سعيد حمزة

I- Choose the correct answer:

(12 Mark)

1. **Saprophytic 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.

2. **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.

3. **_____ protects protozoans against unfavorable environmental condition.**
 - a. Food vacuole.
 - b. Contractile vacuole.
 - c. Cyst.
 - d. None of the previous.

4. **Chief function of food vacuole is _____.**
 - a. temperature regulation
 - b. reproduction
 - c. digestion
 - d. osmoregulation

5. ***Trichomonas* belongs to class _____.**
 - a. Sarcomastigophora.
 - b. Mastigophora
 - c. Pytomastigophorea.
 - d. Zoomastigophorea.

6. **The most common method of sexual reproduction in the Protozoa is by**
 - a. conjugation.
 - b. multiple fission.
 - c. budding.
 - d. binary fission.

7. **Fever malaria in human is caused by**
 - a. *Plasmodium*.
 - b. *Trypanosoma*.
 - c. *Amoeba*.
 - d. *Ascaris*.

8. **The final host of *Sarcocystis* is _____.**
 - a. sheep
 - b. frog
 - c. man
 - d. cattle

9. **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.

10. **_____ is a parasite of human urethra.**
 - a. *Giardia intestinalis*
 - b. *Trichomonas vaginalis*
 - c. *Opalina*
 - d. *Trypanosoma*

11. ***Entamoeba histolytica* is found in human _____.**
 - a. mouth cavity
 - b. stomach
 - c. large intestine
 - d. liver

12. **Tsetse fly is the intermediate host of _____.**
 - a. *Plasmodium*.
 - b. *Amoeba*.
 - c. *Trypanosoma*
 - d. *Giardia*.

13. **_____ 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

14. **Which protozoan reproduces by longitudinal binary fission?**
 - a. *Paramecium*.
 - b. *Amoeba*.
 - c. *Plasmodium*.
 - d. *Euglena*.

15. Sleeping sickness in human is caused by _____.
a. trypanosomes. b. amoeboids. c. euglenoids. d. ciliates.
16. *Giardia* can reproduce by _____.
a. conjugation. b. budding. c. multiple fission. d. binary fission.
17. Which of these has two hosts?
a. *Trichomonas* b. *Giardia* c. *Entamoeba coli* d. *Trypanosoma*
18. *Plasmodium* belongs to _____.
a. ciliates. b. flagellates. c. amoeboids. d. sporozoans.
19. Which of these has one host?
a. *Toxoplasma* b. *Sarcocystis* c. *Giardia* d. *Trypanosoma*
20. All of the following moves by pseudopodia EXCEPT _____.
a. *Amoeba*. b. *Euglena*. c. *Entamoeba coli*. d. *Entamoeba histolytica*.
21. Which of the following is characteristic of protozoa?
a. multicellular b. unicellular c. moves by tentacles d. sized from 5 to 12 cm
22. Mastigophora are commonly called _____.
a. ciliates. b. flagellates. c. amoeboids. d. sporozoans.
23. The infective stage of *Entamoeba coli* is _____.
a. egg b. cyst c. cercaria d. metacercaria
24. Infective stage of *Giardia* to man is _____.
a. Sporozoite b. Trophozoite c. Gametocyte d. Cyst

II- Write about "three only" from the following: (12 Mark)

1. General characters of Protozoa.
2. Life cycle of *Plasmodium* in human.
3. Life cycle of *Toxoplasma*.
4. Life cycle of *Trypanosoma*.

(With best wishes)
Dr/ Dalia Said Hamza

Answers

Protozoa

I- Choose the correct answer:

(12 Mark)

1. b. feeding by absorbing solution of decayed organic and inorganic substances.
2. c. Toxoplasmosis
3. c. Cyst.
4. c. digestion
5. d. Zoomastigophorea.
6. a. conjugation.
7. a. *Plasmodium*.
8. c. man
9. c. Maintains osmotic balance by continuous water expulsion.
10. b. *Trichomonas vaginalis*
11. c. large intestine
12. c. *Trypanosoma*
13. d. None of the previous
14. d. *Euglena*.
15. a. trypanosomes.
16. d. binary fission.
17. d. *Trypanosoma*
18. d. sporozoans.
19. c. *Giardia*
20. b. *Euglena*.
21. b. unicellular
22. b. flagellates.
23. b. cyst
24. d. Cyst

II- Write about "three only" from the following:

(12 Mark)

1. General characters of Protozoa.

1. **Habitat:** Protozoan animals may be free-living, commensal, mutualistic or parasitic (both endoparasitic and ectoparasitic). Many species live as solitary individuals, while a few live in colonies.
2. **Body shape:** The shape is variable; it may be spherical, oval, elongated or flattened.
3. **Size:** The great majority are very small in size and can only be seen by the aid of the light microscope. Some of them are only 2 or 3 μm in length, but the majority are larger, reaching 250 μm in length. There are few species, however, which reach 16 mm in length and thus can be seen by the naked eye.
4. **Structure:** In the majority of cases, there is only one nucleus in the cytoplasm with the distinct nucleoli often referred to as the endosomes. Some protozoans have two or more nuclei which may be monomorphic or dimorphic. The cytoplasm is usually differentiated into outer clear ectoplasm and inner granular endoplasm.

The cell is covered by a delicate plasma membrane or by a firm living pellicle. Some forms have non-living external envelopes of gelatinous, cellulose or calcareous substances.

5. Nutrition: It may be,

a. Holophytic: In this type, the organism synthesizes its own complex organic food material from carbon dioxide and water in the presence of sunlight, as plants generally do (e.g. *Euglena*).

b. Saprophytic: Feeding by absorbing solution of decayed organic and inorganic substances found in the surrounding medium by diffusion through the protozoan body surface.

c. Heterotrophic: Is the most common type of nutrition in this phylum. In this type, the animal feeds actively on other organisms (bacteria, algae, smaller protozoa, etc.) or on decaying organic matter.

The electron microscope has recently shown that most of the protozoa actually ingest droplets of the surrounding medium in tiny vacuoles at the surface, the process known as pinocytosis.

6. Digestion: It takes place intracellularly inside the food vacuoles by the help of enzymes of lysosomes, the food reaches the vacuole through a cell mouth (cytostome) or by engulfment by pseudopodia. The digested food is absorbed, and the undigested remains are ejected outside.

7. Respiration: It takes place by diffusion of oxygen and gives off carbon dioxide through the body surface. Some protozoans are capable of anaerobic respiration, others die when exposed to oxygen.

8. Excretion: There are no specialized excretory organelles for excretion. It takes place by diffusion of metabolic wastes through the body surface.

9. Water balance (osmo-regulation): Most Protozoa which live in fresh water are provided by water balancing structure called contractile vacuoles, which remove excess water from cytoplasm.

10. Reproduction: It is of two main types,

a. Asexual reproduction:

- Binary fission: The animal is divided into equal daughter cells.
- Multiple fission: The protozoan divides into a number of daughter individuals.
- Budding: One or more smaller daughter individuals are produced.
- Sporulation: Some species multiply by a process of sporulation without encystment during unfavourable conditions.

b. Sexual reproduction:

- Fusion: Gametes fuse together, they may be identical (isogametes) or different (anisogametes).
- Conjugation: In ciliates exchange of nuclei takes place between two individuals.

11. Alternation of generation: In some protozoans, the life cycles are complicated and show alternation of generation (life cycle includes asexual and sexual phases).

12. Encystment: Many protozoan animals secrete a protective cyst which resists

unfavourable conditions and for dispersal. This is especially true of parasites, which usually pass from one host to another as cysts or spores, covered by a resistant membrane that protects them while out of the host. Many free-living protozoa also encyst to survive unfavourable conditions.

13. Locomotion: The locomotory organs vary as the following:

- a. Flagella: As in Mastigophora (Flagellates, e.g. *Euglena*).
- b. Pseudopodia: As in Sarcodina (Amoeboids, e.g. *Amoeba*).
- c. Cilia: As in Ciliophora (Ciliates, e.g. *Paramecium*).
- d. Sporozoans don't have locomotory organs, and move by gliding.

14. Classification: Subkingdom Protozoa has one phylum called Protozoa which classified into four subphyla, Sarcomastigophora, Sporozoa, Cnidospora and Cilliophora.

2. Life cycle of *Plasmodium* in human.

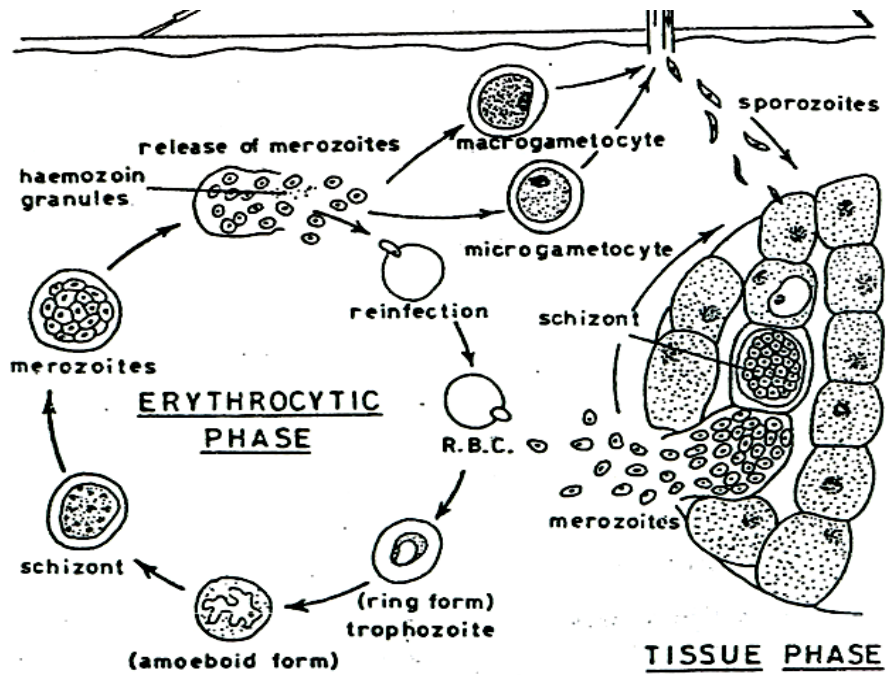
In man's liver (asexual):

Sporozoit, sickle-shaped, in the hepatic cells; schizont, rounded and divides (schizogony) into about 1000 merozoites which are released into the hepatic sinusoids. The merozoites may reinfect hepatic cells or pass into the general circulation.

In man's blood (asexual):

Trophozoites, which are the result of growth of the merozoites inside the red blood cells. A trophozoites is at first disc-like then becomes ring-shaped when a vacuole appears in its middle (signet-ring stage), and at last it develops pseudopodia and acquires athen amoeboid form (amoeboid stage). It then rounds up, enlarges, and upon reaching the optimum size for division, it is called a schizont. Meanwhile haemozoin granules appear in its cytoplasm. The schizont divides by multiple fission or schizogony into a limited number of merozoites and the blood cells bursts liberating the merozoites and haemozoin granules into the blood. The merozoites attack new red cells to repeat the schizogonic cycle again and again.

Some of merozoites develop into gametocytes of two types: macrogametocytes with small peripheral nuclei and dense cytoplasm loaded with reserve food material, and microgametocytes with larger eccentric nuclei and lighter cytoplasm.

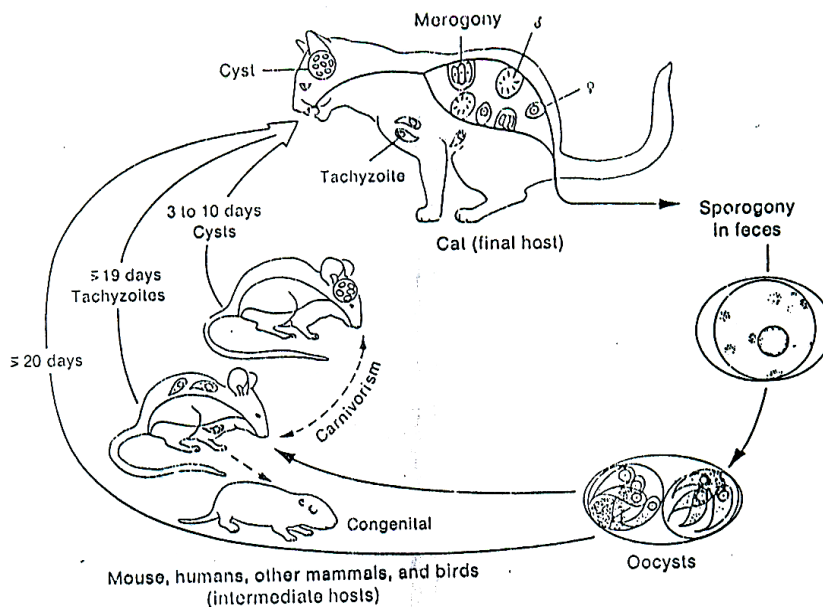


Life cycle of *Plasmodium* in human

3. Life cycle of *Toxoplasma*.

In the nature cycle, mice and rats containing infective cysts are eaten by the cat, which serves as definitive host for the sexual stage of the parasite. The cyst wall is digested, releasing organisms that penetrate epithelial cells of the small intestine of the cat. Several generations of intracellular multiplication occur, finally, the parasite develops micro and macrogametes, then fertilization occurs, and oocytes are developed and discharged into the intestinal lumen. Oocyst requires 1-5 days to sporulate.

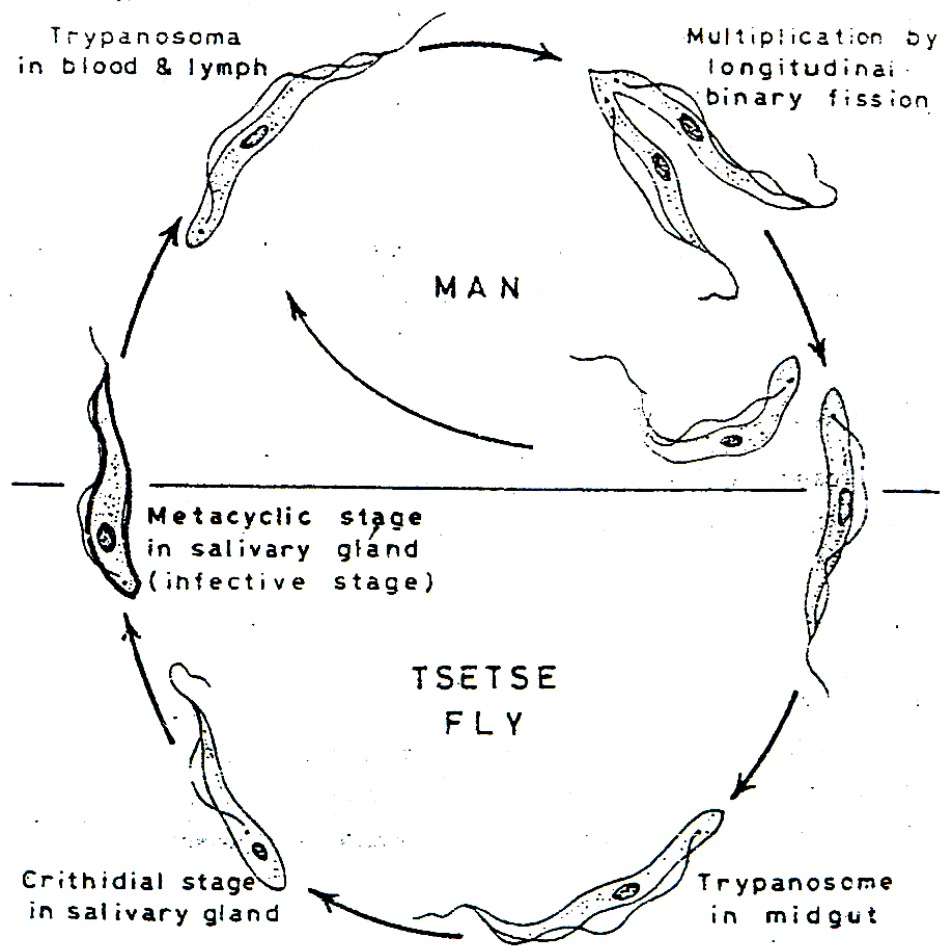
Human or animal infections can result from ingestion of material contaminated with infected cat feces, or by eating raw or partially cooked meat and drinking unboiled milk.



4. Life cycle of *Trypanosoma*.

In the blood of man; there are two main forms of the parasite, these are the stumpy forms which are short, thick with a very short or no flagella, and the slender long flagellum. The parasites multiply in the blood of human beings and cause trypanosome fever, and may reach to the central nervous system and cause death.

When tsetse fly bites an infected person, some of the parasites are sucked with the blood into the fly midgut. In the intestine, all are digested except the stumpy forms, which will multiply giving rise to the slender long forms, which will migrate to the salivary glands giving rise to crithidial forms, which will give rise to metacyclic forms (infective stage) and thus fly becomes infective.



Life cycle of *T. gambiense* and *T. rhodesiense*