

أسئلة وأجوبة مادة أوليات ولافقاريات (٣٢١ ح)

(ورقة إمتحانية كاملة)

تيرم صيفى ٢٠١٦

كلية: العلوم

قسم: علم الحيوان

المستوى: الثالث

شعبة: حيوان وكيمياء

تاريخ الإمتحان: ٧ / ٩ / ٢٠١٦

أستاذ المادة: د/ داليا سعيد حمزة

I- Choose the correct answer: (24 Degree)

- The protozoa store food in structures called \_\_\_\_\_.**  
a. vacuoles      b. stomachs      c. gullets      d. nuclei
- Mastigophora are commonly called \_\_\_\_\_.**  
a. ciliates.      b. flagellates.      c. amoeboids.      d. sporozoans.
- Osmoregulation in Protozoa takes place by \_\_\_\_\_.**  
a. food vacuole      b. contractile vacuole      c. plasmalemma      d. plasmagel.
- Protozoa may motile by each of following methods except**  
a. cilia      b. tentacles      c. flagella.      d. pseudopodia.
- Saprozoic 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 above.
- The foraminiferan shells are made of \_\_\_\_\_.**  
a. calcium carbonate      b. silicate      c. cellulose      d. sponging
- Paramecium* has \_\_\_\_\_ contractile vacuole.**  
a. one      b. two      c. three      d. many
- \_\_\_\_\_ is multinucleated.**  
a. *Amoeba*      b. *Paramecium*      c. *Opalina*      d. *Euglena*
- The \_\_\_\_\_ consists of 20 fibrils and an outer membranous sheath.**  
a. cilium.      b. flagellum.      c. pseudopodium.      d. The answers (a) and (b) are correct.
- Conjugation is the most common method of sexual reproduction in \_\_\_\_\_.**  
a. Protozoa.      b. Coelenterata.      c. Platyhelminthes.      d. Cestoda.
- Sponges obtain food:**  
a. with their sponging.      b. by using their spicules to paralyze protozoa.  
c. through photosynthesis.      d. by filtering small organisms from the water.
- Sponges:**  
a. are mostly marine.      b. occur in colonies.      c. are diploblastic.      d. all of the previous.

تابع بقية الاسئلة بالخلف

**13. Choanocytes of the sponges:**

- a. create water currents for feeding.
- b. serve food storage.
- c. are necessary for sperms and ova formation.
- d. the answers (b) and (c) are correct.

**14. The shape of the sponge is:**

- a. bilaterally symmetrical.
- b. radially symmetrical.
- c. variable.
- d. The answers (b) and (c) are correct.

**15. The water current excite the body cavity of the sponge from:**

- a. osculum.
- b. spicules.
- c. ostia.
- d. collar cells.

**16. The sponges have:**

- a. mouth.
- b. digestive system.
- c. advanced nervous system.
- d. skeletal support of spicules and/or spongin fibres.

**17. Sponges can reproduce sexually by:**

- a. budding of new sponges from the parent
- b. regeneration.
- c. using ova and sperms.
- d. all of the previous.

**18. Where does the sponge digest its food?**

- a. Intracellular.
- b. Gastrovascular cavity.
- c. Stomach.
- d. Intestine.

**19. Respiration in sponges occurs by \_\_\_\_\_.**

- a. one lung.
- b. two lungs.
- c. simple diffusion.
- d. none of the previous.

**20. Sponges are \_\_\_\_\_ animals.**

- a. unicellular.
- b. multicellular.
- c. terrestrial.
- d. bilaterally symmetrical.

**21. The larva of the sponge is called \_\_\_\_\_.**

- a. Planula
- b. Amphiblastula
- c. veliger
- d. Trochophore

**22. Scyphozoa include:**

- a. hydras.
- b. jellyfish.
- c. sea anemones and stony corals.
- d. the sponges.

**23. In Coelenterata, the extracellular digestion occurs in which of the following?**

- a. Epidermal cells.
- b. Gastrodermal cells.
- c. Gastrovascular cavity.

**24. Coelenterata is classified into the following classes EXCEPT:**

- a. Hydrozoa.
- b. Metazoa.
- c. Scyphozoa.
- d. Anthozoa.

**25. In coelenterates, the nervous system is \_\_\_\_\_.**

- a. ganglionated.
- b. well developed.
- c. consisting of a network of nerve cells.

**26. Reproduction of coelenterates is by:**

- a. binary fission
- b. budding.
- c. sperm and ova.
- d. the answers (b) and (c) are correct.

تابع بقية الاسئلة بالخلف

27. **Stony corals belong to class:**  
 a. Hydrozoa.      b. Scyphozoa.      c. Anthozoa.      d. Alcyonaria.
28. **Excretion takes place in Coelenterata by \_\_\_\_\_.**  
 a. one kidney.      b. two kidneys.      c. simple diffusion.      d. flame cells
29. **Nematocysts of Coelenterata serve for \_\_\_\_\_.**  
 a. defence.      b. reproduction.      c. excretion .      d. respiration.
30. **The larva of Coelenterata is called \_\_\_\_\_.**  
 a. Planula      b. Amphiblastula      c. Parenchymula      d. Trochophore
31. **The Pig is the intermediate host of \_\_\_\_\_.**  
 a. *Schistosoma mansonii*.      b. *Schistosoma haematopium*.  
 c. *Taenia saginata*.      d. *Taenia solium*.
32. **Which of the following lives in the intestine of man?**  
 a. *Schistosoma*      b. *Fasciolopsis buski*      c. *Fasciola*      d. *Paragonimus westermani* .
33. **Platyhelminthes include all the following classes EXCEPT \_\_\_\_\_.**  
 a. Turbellaria.      b. Trematoda.      c. Cestoda.      d. Nematoda.
34. ***Bimphalaria alexandrina* is the intermediate host of:**  
 a. *Schistosoma mansonii*.      b. *Schistosoma haematopium*.  
 c. *Taenia saginata*.      d. *Taenia solium*.
35. ***Lymnaea* spp. is the intermediate host of \_\_\_\_\_.**  
 a. *Schistosoma*.      b. *Fasciola*.      c. *Taenia*.      d. *Ascaris*.
36. **The Tape worms refer to \_\_\_\_\_.**  
 a. Cestoda.      b. Nematoda.      c. Trematoda.      d. Sarcodina
37. **The infective stage of *Heterophyes heterophyes* is a \_\_\_\_\_.**  
 a. cercaria      b. Encysted metacercaria on grass  
 c. egg      d. Encysted metacercaria in fish muscle
38. **The infective stage of *Schistosoma* is a \_\_\_\_\_.**  
 a. cercaria      b. metacercaria      c. sporocyst      d. egg
39. **Platyhelminthes are best described as \_\_\_\_\_ animals.**  
 a. flatworms, triploblastic, celomates      b. flatworms, diploblastic, celomates  
 c. flatworms, triploblastic, acelomates      d. flatworms, diploblastic, acelomates
40. **In Platyhelminthes, flame cells are component of their \_\_\_\_\_ system.**  
 a. reproductive      b. nervous      c. excretory      d. circulatory
41. ***Paragonimus westermani* is a \_\_\_\_\_.**  
 a. Liver fluke      b. Blood fluke      c. Lung fluke      d. Intestinal fluke

تابع بقية الاسئلة بالخلف

42. Infective stage of *Dipylidium caninum* is \_\_\_\_\_.  
a. cercaria      b. metacercaria      c. sporocyst      d. cysticercoid
43. Hydatid disease caused by \_\_\_\_\_.  
a. *Paragonimus westermani*.  
b. *Heterophyes heterophyes*.  
c. *Hymenolepis nana*.  
d. *Echinococcus granulosus*.
44. *Hymenolepis nana* belongs to \_\_\_\_\_.  
a. Turbellaria      b. Cestoda      c. Trematoda      d. Nematoda
45. Members of Platyhelminthes are called flatworms because their bodies are flattened \_\_\_\_\_.  
a. posteriorly      b. anteriorly      c. laterally      d. dorsoventrally
46. In Platyhelminthes the space between the body wall and gut are filled with \_\_\_\_\_.  
a. parenchyma      b. rhabdite      c. cuticle layer      d. tegument
47. The nervous system of Platyhelminthes is \_\_\_\_\_.  
a. primitive      b. well advanced      c. consists of network of nerve cells
48. Dipyllobothriasis in human occurs as a result of \_\_\_\_\_.  
a. ingesting infected flea      b. consumption of raw or undercooked fish  
c. ingesting contaminated food      d. consumption of raw or uncooked meat

**II- Write about “six points” from the following: (24 Degree)**

- 1- Types of pseudopodia.
- 2- Types of reproduction of Protozoa.
- 3- Sexual reproduction in Porifera.
- 4- Nematocysts of Coelenterata.
- 5- General characters of Cestoda.
- 6- Life cycle of *Heterophyes heterophyes*.
- 7- Life cycle of *Fasciolopsis buski*.
- 8- Life cycle of *Echinococcus granulosus*.

**(With best wishes)**

**Dr/ Dalia Said Hamza**

# Answers

## I- Choose the correct answer:

(24 Degree)

- 1- a. vacuoles
- 2- b. flagellates.
- 3- b. contractile vacuole
- 4- b. tentacles
- 5- b. feeding by absorbing solution of decayed organic and inorganic substances.
- 6- a. calcium carbonate
- 7- b. two
- 8- c. *Opalina*
- 9- d. The answers (a) and (b) are correct.
- 10- a. Protozoa.
- 11- d. by filtering small organisms from the water.
- 12- d. all of the previous.
- 13- a. create water currents for feeding.
- 14- d. The answers (b) and (c) are correct.
- 15- a. osculum.
- 16- d. skeletal support of spicules and/or spongin fibres.
- 17- c. using ova and sperms.
- 18- a. Intracellular.
- 19- c. simple diffusion.
- 20- b. multicellular.
- 21- b. Amphiblastula
- 22- b. jellyfish.
- 23- c. Gastrovascular cavity.
- 24- b. Metazoa.
- 25- c. consisting of a network of nerve cells.
- 26- d. the answers (b) and (c) are correct.
- 27- c. Anthozoa.
- 28- c. simple diffusion.
- 29- a. defence.
- 30- a. Planula
- 31- d. *Taenia solium*.
- 32- b. *Fasciolopsis*
- 33- d. Nematoda.
- 34- a. *Schistosoma mansoni*.
- 35- b. *Fasciola*.
- 36- a. Cestoda.
- 37- d. Encysted metacercaria in fish muscle
- 38- a. cercaria
- 39- c. flatworms, triploblastic, acelomates
- 40- c. excretory
- 41- c. Lung fluke
- 42- d. cysticercoid
- 43- d. *Echinococcus granulosus*.
- 44- b. Cestoda

- 45- d. dorsoventrally
- 46- a. parenchyma
- 47- a. primitive
- 48- b. consumption of raw or undercooked fish

**II- Write about “six points” from the following: (24 Degree)**

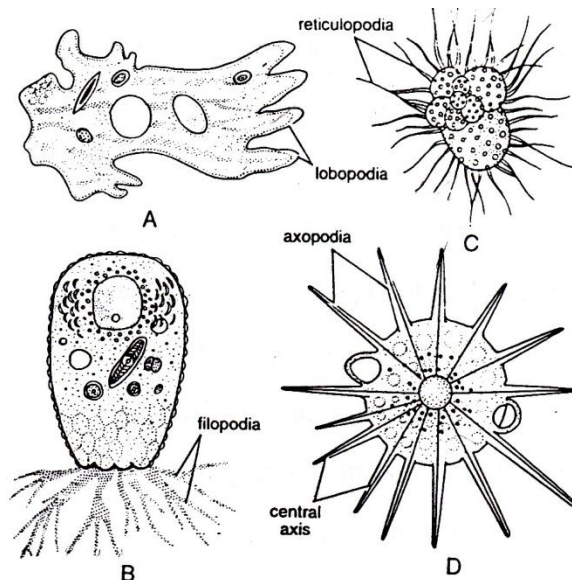
**1- Types of pseudopodia.**

Lobopodia: Finger shaped rounded tipped pseudopodia that usually contain both ectoplasm and endoplasm (e.g. *Amoeba*).

Filopodia: Are fine, long threads, often with rounded ends, they may branch; they are made of only hyaline ectoplasm (e.g. *Euglypha*).

Rhizopodia or reticulopodia: Are thin, long and branching. The branches of adjacent pseudopodia may anastomose to form a network which also serves as a trap for capturing food (e.g. *Globigerina*).

Axopodia: Are long, stiff threads made of ectoplasm, with a hard central axial filament of endoplasm, unlike others they are semipermanent (e.g. *Actinophrys*). Axopodia are not organelles of locomotion but are only for capturing food.



Types of pseudopodia: A- Lobopodia of *Amoeba*, B- Filopodia of *Euglypha*, C- Reticulopodia of *Globigerina*, D- Axopodia of *Actinophrys*.

**2- Types of reproduction of Protozoa.**

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: Some cells split via budding resulting in a 'mother' and 'daughter' cells. The buds grow into fully matured individuals which eventually break away from the parent organism.
- Sporulation: Some species multiplies by a process of sporulation without encystment during unfavourable conditions.

### b. Sexual reproduction:

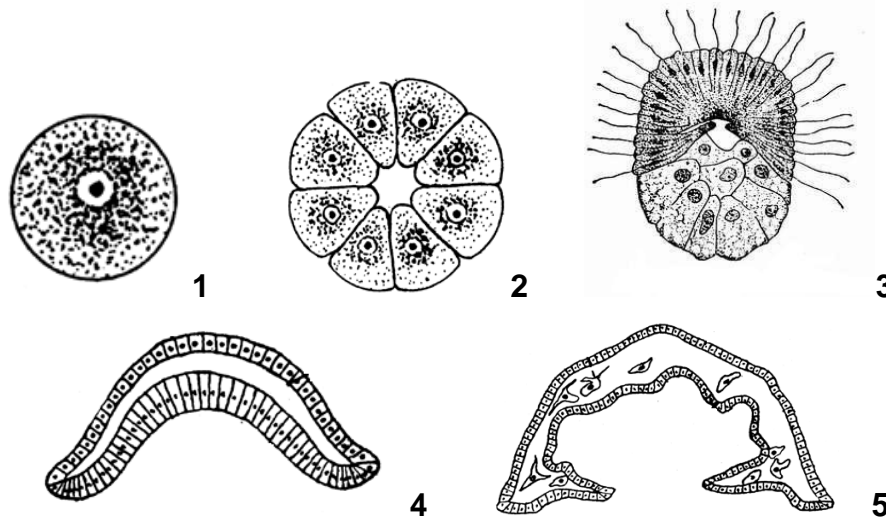
- Conjugation: In ciliates exchange of nuclei takes place between two individuals.
- Syngamy (Fusion): Gametes fuse together, they may be identical (isogametes) or different (anisogametes).

### 3- **Sexual reproduction in Porifera.**

Some sponges are unisexual, but most sponges are hermaphrodites. Although sponges have no gonads (reproductive organs), the reproductive cells are formed by the amoebocytes. The ova are large, amoeboid and remain inside the gelatinous matrix, but the sperms are liberated via the osculum and carried by the water current to enter another sponge. There, they may be either taken up by the choanocytes or by the amoebocytes which carry them to the ova. Thus, fertilization is internal. A few species release fertilized eggs into the water, but most retain the eggs until they hatch.

The zygote develops within the matrix of the parent sponge. Cleavage is total and equal, and results in a characteristic larva known as the "amphiblastula". One pole or hemisphere of this larva is composed of many small flagellated micromeres and the other pole has few large non-flagellated macromeres.

The amphiblastula is carried by the water current away from the parent sponge. After a short free-living existence, it settles down when gastrulation occurs. During gastrulation, the flagellated micromeres come to lay inside and the macromeres outside. The larva now attaches and develops gradually into a young sponge. The micromeres give rise to the gastral layer and the macromeres form the dermal layer. The cells of the two layers then produce the amoebocytes and the other cell types found in between.



Porifera development (1- fertilized zygote, 2- hollow sphere blastula stage, 3- mobile stage amphiblastula larva, 4- gastrula, 5- settled down and development of different cells).

### 4- **Nematocysts of Coelenterata.**

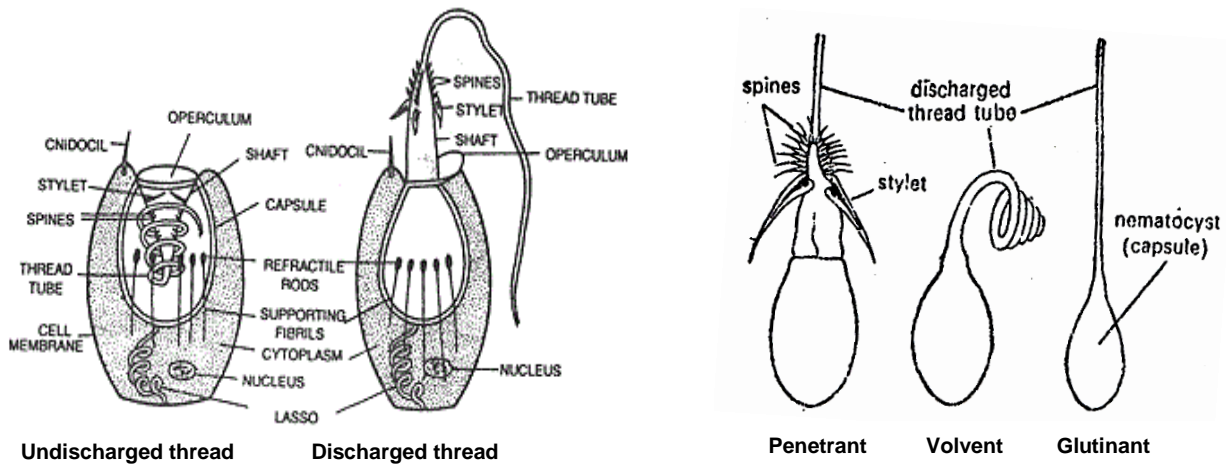
Only cnidarians have stinging capsules, known as nematocysts or cnidae, which give the phylum its name. Cnidae range from only about 10 to 100 micrometers long. Each consists of a spherical or cigar-shaped capsule, hollow tubule extending from one end. In the unfired state, the tubule is coiled within the capsule. When a cnidarian contacts a predator or prey item, the capsule opens and the tubule everts. The tubule may be adhesive, or it may entangle the object. Both types serve to hold food items. A third type of tubule is armed with spines that penetrate predator or prey. Undifferentiated



interstitial cells of the ectoderm and endoderm appear to be the source of the cnidoblasts (cells that produce cnidae).

There are three types of nematocysts, these are:

- Penetrant:** With an open tube, and provided with spines. It penetrates the body of the prey and injects a toxin that has a paralyzing action.
- Volvent:** With unarmed, coiled and closed tube. When discharged, the thread winds around the appendages of the prey.
- Glutinant:** With sticky open threads, used in adhering the animal when it walks on its tentacles.

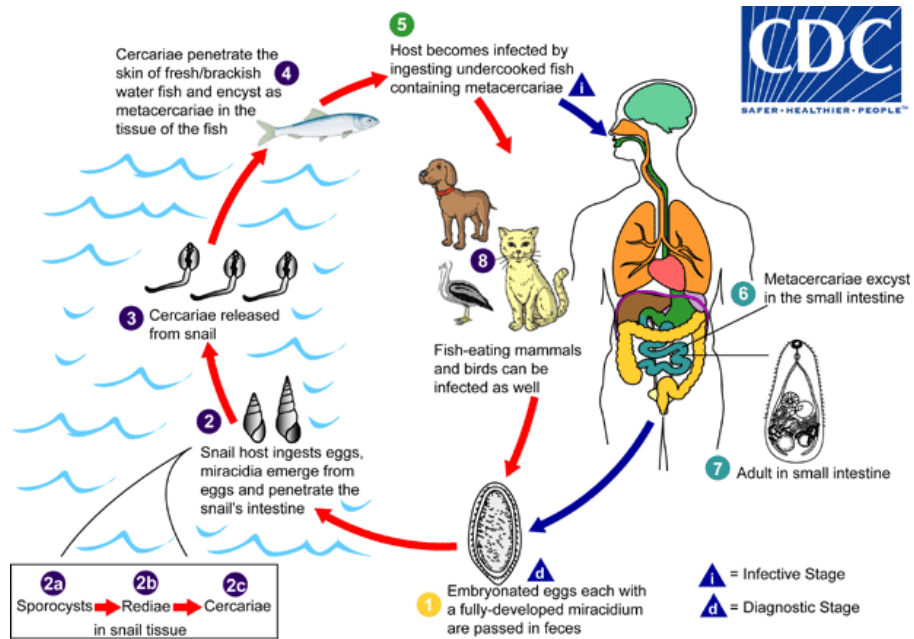


## 5- General characters of Cestoda.

- Parasitic flatworms generally called tapeworms.
- Live in the bodies of humans and other vertebrates.
- Possess a long ribbon-like body consisting of numerous segments called proglottids.
- Like trematodes, cestodes are covered with living tegument.
- No digestive system at any stage so they absorb nutrients through their entire body surface
- Mature proglottids contain function female and male systems.
- Behind the mature proglottids are the gravid proglottids, in which the uterus is filled with eggs.

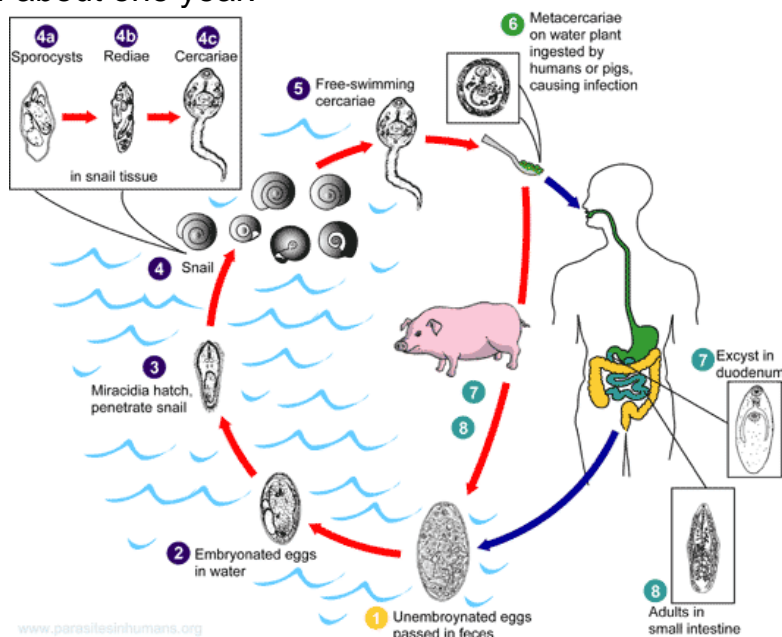
## 6- Life cycle of *Heterophyes heterophyes*.

The adult flukes live burrowed between the villi of the host's small intestine. The eggs that are laid contain a miracidium but do not hatch until they are ingested by a snail (*Cerithideopsisilla conica* in Egypt or *Cerithidia cingula* in Japan). Inside the snails gut, the miracidium becomes a sporocyst which then begin to produce rediae. The rediae produce cercariae which then exit the snail, swim toward the surface of the water, and slowly fall back down. On their way down, they contact a fish and penetrate into the epithelium of the fish. Here, the cercariae encyst in the muscle tissue. The second intermediate host include freshwater fish: *Mugil cephalus*, *Tilapia nilotica*, *Aphanius fasciatus*, and *Acanthogobius* sp. The definitive host, such as humans or birds, eats the undercooked or raw meat of a fish and ingest the parasite. Natural definitive hosts are cats, dogs, foxes, wolves, pelicans, and humans.



### 7- Life cycle of *Fasciolopsis buski*.

Adults produce over 25,000 eggs every day which take up to seven weeks to mature and hatch at 27–32 °C. Immature, unembryonated eggs are discharged into the intestine and stool. In two weeks, eggs become embryonated in water, and after about seven weeks, eggs release tiny parasitic organisms called miracidia, which invade a suitable snail intermediate host. Several species of genera *Segmentina* and *Hippeutis* serve as intermediate hosts. In the snail the parasite undergoes several developmental stages (sporocysts, rediae, and cercariae). The cercariae are released from the snail and encyst as metacercariae on aquatic plants. The mammalian host, or the final host, becomes infected by ingesting metacercariae on the aquatic plants. After ingestion, the metacercariae excyst in the duodenum in about three months and attach to the intestinal wall. There they develop into adult flukes (20 to 75 mm by 8 to 20 mm) in approximately 3 months, attached to the intestinal wall of the mammalian hosts (humans and pigs). The adults have a life span of about one year.



## 8- Life cycle of *Echinococcus granulosus*.

The adult *Echinococcus granulosus* (3 to 6 mm long) ❶ resides in the small bowel of the definitive hosts, dogs or other canids. Gravid proglottids release eggs ❷ that are passed in the feces. After ingestion by a suitable intermediate host (under natural conditions: sheep, goat, swine, cattle, horses, camel), the egg hatches in the small bowel and releases an oncosphere ❸ that penetrates the intestinal wall and migrates through the circulatory system into various organs, especially the liver and lungs. In these organs, the oncosphere develops into a cyst ❹ that enlarges gradually, producing protoscolices and daughter cysts that fill the cyst interior. The definitive host becomes infected by ingesting the cyst-containing organs of the infected intermediate host. After ingestion, the protoscolices ❺ evaginate, attach to the intestinal mucosa ❻, and develop into adult stages ❶ in 32 to 80 days.

