أسئلة وأجوبة مادة أوليات ولافقاريات (٣٢١ح)

(نصف ورقة إمتحانية)

جامعة: بنها

كلية: العلوم

قسم: علم الحيوان

شعبة: حيوان وكيمياء

تاريخ الإمتحان: ٢٠١٤/١٢/٣١

الممتحنون: أ.د/ جزاء حسن مرسى

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Benha University	Jan. Exam. 2015
Faculty of Science	3rd Level Zoology &Chemistry
Zoology Department	Time allowed : 2 Hrs.

PROTOZOA & INVERTEBRATE (321Z)

Group (A)

A - Choose the correct answer: **(6 Mark)**

1…….. is a Chinese liver fluke .
a) *Dicrocoelium dendriticum* b) *Paragonimus westermani*
c) *Clonorchis sinensis* d) *Heterophyes heterophyes*

2…… serve as copulation canal.
a) Laurer's canal. b) Genito-intestial canal
c) Uterus. d) None of these

3*. Echinostoma* characterized by presence of …….
a) Spines surround the oral sucker b) without spines
c) Spines surround the ventral sucker d) None of these

4. Xiphidio cercaria is a Cercaria of …….
a) *Schistosoma* b) *Paragonimus westermani*
c) *Dicrocoelium dendriticum* d) *Fasciola*

5. Eating contaminated <u>fish</u> may cause infection with:
a) *Heterophyes heterophyes* b) *Schistosoma*
c) *Taenia saginata* d) None of these

6. The Opisthaptor has <u>16</u> marginal hooks & a pair of anchors in …..
a) *Echinococcus* b) *Temnocephala*
c) *Diplozoon* d) *Gyrodactylus*

7. The following worms belong to Class Turbellaria except:
a) *Planaria* b) *Temnocephala*
c) *Convoluta* d) *Gyrodactylus*

8. *Formica fusca*is the 2nd intermediate host of ……
a) *Dicrocoelium dendriticum* b) *Schistosoma*
c) *Taenia solium* d) *Multicepsmultice*

9. Onchomiracidum of *Polystoma* invades external gills of tadpole in ……..
a) Primary three year cycle b) Secondary three week cycle

c) Primary one year cycle d) Secondary week cycle

10. The terminal part of uterus in Digenea,referred to as ……...

a) Vitelline duct b) Metraterm
c) Oviduct d) None of these

11. The development is direct in .....

a) *Schistosoma* b) *Planaria*
c) *Taenia* d) *Fasciola*

12. Which of the following is not a characteristic of the Digenea?

a) Two vaginae b) Acoelomate animals
c) Complicated life cycle d) Incomplete digestive track

B- Give a brief account about "Two only" of the following: (6 Mark)

a. Life cycle of Lung fluke infect human.
b. *Diplozoon-Fasciolopsis buski.*
c. Life cycle of *Heterophyes heterophyes*

C- Write on Three only of the following: (12 Mark)

a. Pathogenesis of Cestoda.
b.Different kinds of Metacestodes.
c.The life cycle of *Diphyllobothriumlatum.*
d.The life cycle of *Echinococcusgranulosus*

Answer

Group (A)

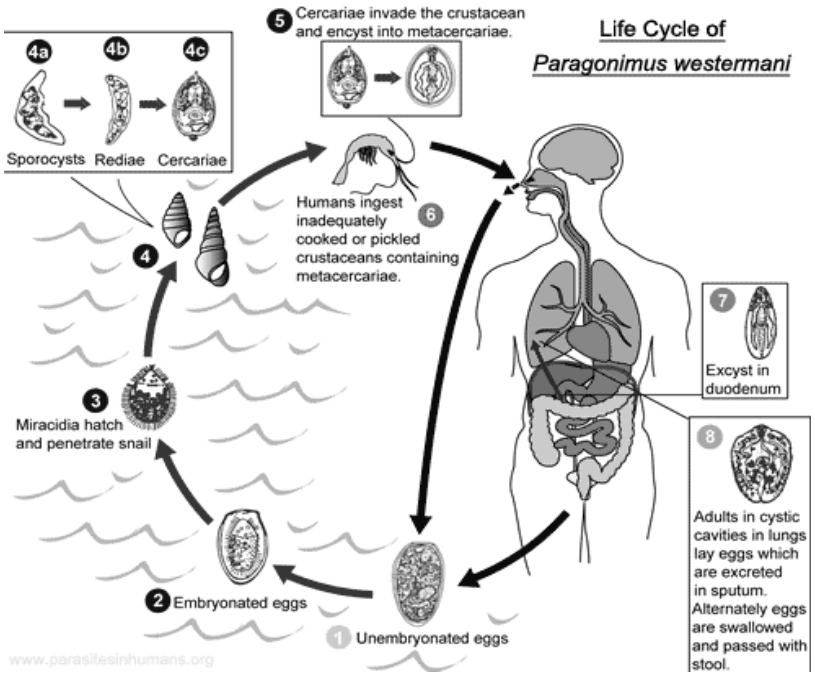
A - Choose the correct answer:

1. *Clonorchis sinensis* is a Chinese liver fluke.
2. Laurer's canal serve as copulation canal.
3*. Echinostoma* characterized by presence of Spines surround the oral sucker
4. Xiphidio cercaria is a Cercaria of ***Dicrocoelium dendriticum***
5. Eating contaminated fish may cause infection with *Heterophyes heterophyes*
6. The Opisthaptor has 16 marginal hooks & a pair of anchors in *Gyrodactylus*
7. The following worms belong to Class Turbellaria except *Gyrodactylus*
8. *Formica fusca*is the 2nd intermediate host of *Dicrocoelium dendriticum*
9. Oncho miracidum of *Polystoma* invades external gills of tadpole in Secondary three week cycle
10. The terminal part of uterus in Digenea, referred to as Metraterm
11. The development is direct in *Planaria*
12. Which of the following is not a characteristic of the Digenea?
Two vaginae

B- Give a brief account about "Two only" of the following:

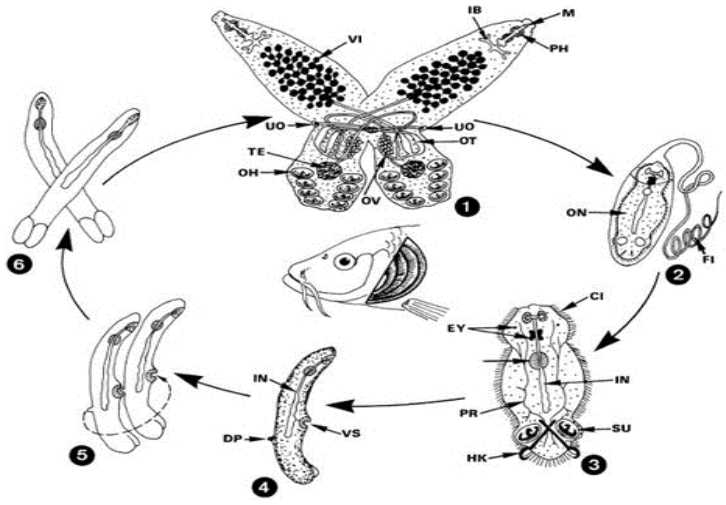
a. Life cycle of Lung fluke infect human.

Paragonimus westermani (Oriental lung fluke): The worm lives in the lung tissue of the final host (man, dog and other carnivorous mammals) enclosed in the cystic cavities. Ova are retained in the cysts until these rupture and are then passed in the sputum or faeces. They hatch in freshwater giving rise to miracidia that enter into the snail (***Melania&Thiara spp.***) Miracidia develop successively into sporocysts, mother and daughterrediae and cercariae . These are microcercous and emerge from the snail leading then a stationary, crawling or floating existence until they encyst in the heart, muscles or gills of freshwater crabs **(*Potamon*)**. The final host becomes infected by eating raw or partially cooked flesh of the crustacean host.



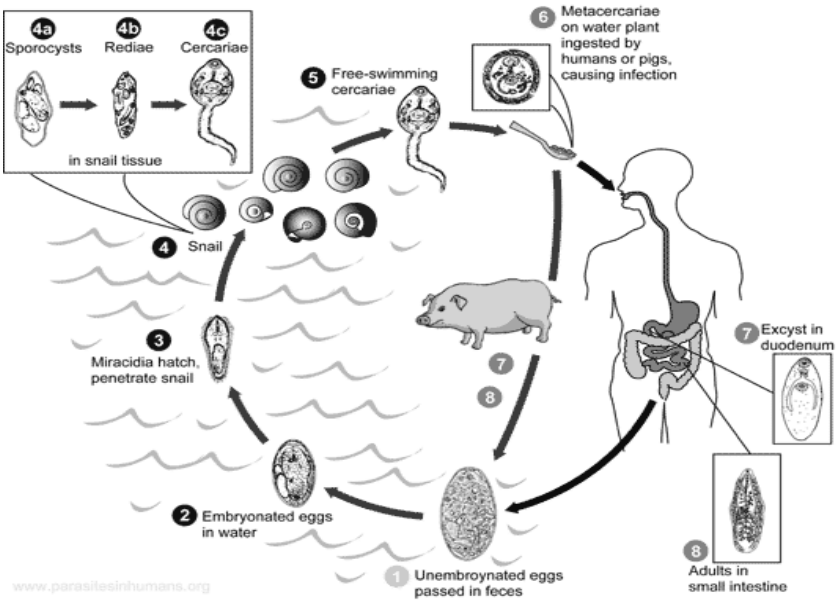
b.*Diplozoon- Fasciolopsis buski*

Diplozoon, which lives attached to the gills of minnow, genitalia do not develop until the newly formed ciliated larvae diporpae meet one another and each two larvae X-shape. After fusion, the generative organs develop and the sperm duct of one enters the yolk duct of the other. The two partners remain in permanent copulation throughout their whole life.



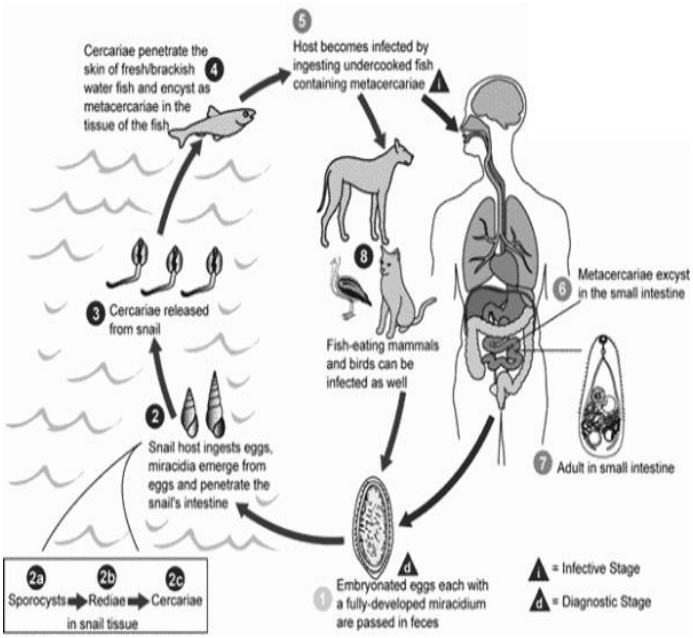
Fasciolopsis buski is the largest intestinal digenean parasite of man (3 x 1.2 cm in average), living in the small intestine , particularly in the duodenum , sometimes the stomach or large intestine .It differs from *Fasciola* in that cephalic cone is indistinct ,intestinal caeca are unbranched ,testes occupy the

middle of the posterior half , ovary is in the middle of the body & the uterus is convoluted and much longer .The life cycle resembles that of *Fasciola* but the intermediate hosts are the snails ***Planorhis&Segmentina***.



c. Life cycle of *Heterophyes heterophyes*

Heterophyes heterophyes .This is the smallest digenean. It is an intestinal parasite of man, cat, dog, fox & other fish-eating mammals, causing heterophyasis which is common around the northern lakes of Egypt. The body is pear shaped, with a subterminal oral sucker, submedian well-developed ventral sucker, in addition to a genital sucker,.Eggs path out with the faeces from the primary host. Each contains a fully developed miracidium which hatches after being ingested by the brackish water snail *Pirenella conica.* In the body of the latter, the sporocyst& one or two redial generations are developed. From the rediae emerge lophocercouscercariae which complete their development in the the second intermediate host, usually a freshwater fish {mainly *Mugil* (Bouri), *Oreochromis (Bolti) & Gambusia*}. The cercaria penetrates the skin of the fish & encysts in the muscles & other tissues. On eating such fishes not properly cooked or salted, the final host becomes infected with the metacercaria. The cyst dissolves in the intestine & the young fluke is liberated & grows to the adult stage.



C- Write on <u>Three only</u> of the following:

a. Pathogenesis of Cestoda.

Adult tapeworms are generally not too pathogenic unless they are found in large numbers in one host. Sometimes they produce visible symptoms in young animals or weak and underfed animals. They have been cases of individual sensitivity where the tapeworms were the major cause of the symptoms. These were mainly generalized toxic and allergic clinical signs. The presence of large numbers of tapeworms in sheep has been occasionally associated with decreased motility of the intestine and development of ketosis. Larval stages are dangerous because they may lodge in vital organs or press on vital areas of the brain, orbit, heart, liver, etc. Sometimes they cause obstruction and in case of hydatid cysts, they may be break and metastasize. Some larval tapeworms have a very important public health implication. They are zoonoses which occur very commonly in some parts of the world.

In few cases, it was shown that the presence of tapeworms may interfere with the utilization of vitamin $B_{12.}$ Whether the tapeworm of other factors are directly involved in precipitating the symptoms of pernicious anemia as a result of vitamin B_{12} deficiency is not clearly understood.

b. Different kinds of Metacestodes.

There are five kinds of metacestodes into which onchosphere develop depending upon the species of tapeworm and the intermediate host in which it develops.

1. Cysticercoid:

   The larva of any of certain tapeworms, which resembles a cysticercus but has a smaller bladder. It is found in invertebrate hosts.

2. Cysticercus:

   The larva of certain tapeworms, parasitic in an intermediate host, in which the head and neck are partly enclosed in a bladder-like cyst; bladderworm. It is usually found among the muscle fibers of viscera of vertebrates.

3. Strobilocercus:

   A taenioid tapeworm larva of the cysticercus type, but with a conspicuous segmented neck, small terminal bladder, and everted scolex. It is usually found among the viscera of vertebrates.

4. Multiceps:

   A thin-walled cyst containing several scolex each of which attached to the cyst wall. They are found in vertebrates.

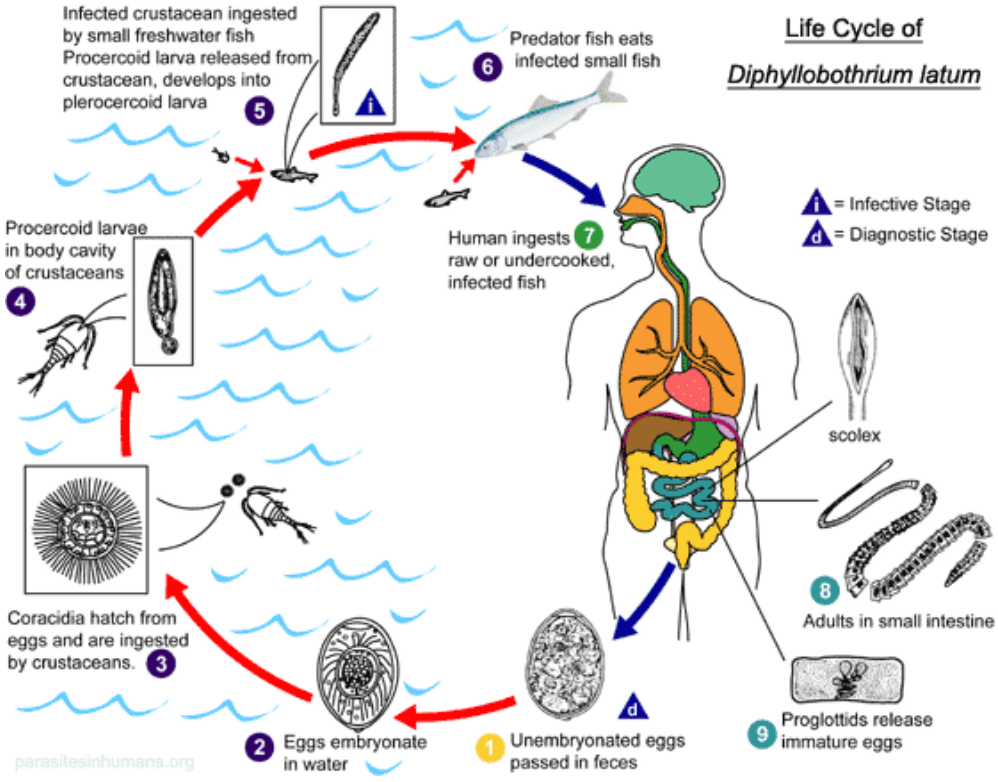
5. Hydatid cyst or Echinococcus cyst:

   Any of several parasitic tapeworms of the genus *Echinococcus,* the larvae of which infect mammals and form large, spherical cysts inthe liver or lung, causing serious or fatal disease. They are found in the liver and lungs.

c.The life cycle of *Diphyllobothrium latum.*

The **life cycle** of *Diphyllobothrium latum* starts, when immature eggs are passed in the feces of an infected human. The eggs mature in water within three weeks and form oncospheres. Larvae called coracidia hatch and get eaten by freshwater crustaceans such as copepod. After ingestion coracidia develop into procercoid larvae. If the copepod is eaten by a small fish (second intermediate host), the procercoid larvae penetrate the gut and migrate to muscle tissue where they develop into plerocercoid larvae (sparganum), the

infective stage for humans. Usually a third intermediate host is needed because humans do not usually eat raw fish this small. If a trout, walleyed pike or perch eats the smaller fish, the plerocercoid larvae once again penetrate the gut and migrate to fish flesh. If a human eats the infected fish raw or undercooked the plerocercoid larvae develop into adults in the small intestine. The adults attach to the intestinal mucosa with two shallow, bilateral grooves (bothria) of their scolex. The scolex is 3 mm long and 1 mm wide. The long, flat body consists of segments, proglottids, that are produced by the neck. Full grown proglottids are about 10 mm wide and 3 mm long. As proglottids mature, they release eggs and eventually break off from the body. A *Diphyllobothrium latum* proglottid is characterized by a rosette-shaped uterus at its center. The eggs are ellipsoidal or oval measuring 55–75 µm by 40–50 µm. They are passed in the feces unembryonated (immature). From the start of the infection it takes about six weeks for the eggs to appear in the feces. One adult tapeworm can shed up to a million eggs per day. It can grow over 10 meters long and live up to 20 years.



d. The 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 ❶in 32 to 80 days.