

أسئلة وأجوبة مادة الالفقاريات (٢٢١ ح)  
نصف ورقة إمتحانية

جامعة: بنها  
كلية: العلوم  
قسم: علم الحيوان  
المستوى: الثاني  
شعبة: حيوان وكيمياء، بيوتكنولوجي  
أستاذ المادة: د/ جيهان حسين لاشين  
تاريخ الإمتحان: ٢٠١٤/١٢/٢١

**Group (A)**

**I- (a) Complete the following:-**

**[10 Marks ]**

1. The female genital opening of *Penaeus* lie on thoracic segment .....& the thelycum lie on the thoracic segment .....
2. Excretion of ..... takes place by 17 pairs of nephridia which opening on segments .....
3. Suboesophageal ganglion of *Scorpion* gives off nerves to ....., ....., ..... & .....
4. Coelom in Annelida performs different functions ....., ..... & .....
5. The blood of ..... has no respiratory function but it perform other functions such as ....., ..... & .....
6. The Circulatory system of *Scorpion* is ..... type & its heart consists of ..... chambers.
7. In *Hirudo*, the mouth has ..... serrated jaws. These jaws cause a characteristic ..... wound on the body of the host.
8. The function of *Petasma* is ..... while the function of *Spermathecae* is .....
9. According to the presence of hard exoskeleton in Arthropoda, appear new characters ....., ....., ..... & .....
10. Autotomy in Arthropoda means..... While tagmosis means .....

**(b) Choose:**

**[6 Marks]**

**1. Which of the following is not a characteristic of the Polychaetes?**

- |                   |                       |
|-------------------|-----------------------|
| a) Segmented body | b) Trochophore larva  |
| c) Marine habitat | d) Jointed appendages |

**2. All of the following are the gills of the *Penaeus* except:**

- |                    |                  |
|--------------------|------------------|
| a) Pleurobranchiae | b) Podobranchiae |
| c) Arthrobranchiae | d) Coxobranchiae |

**3. Seasonal dimorphism is a phenomenon found in:**

- a) Oligochaeta  
c) Polychchaeta
- b) Arthropoda  
d) Hirudinea

**4. Which of the following is not amandibulate ?**

- a) *Scorpion*  
c) *Prawn*
- b) *Scolopendra.*  
d) *Lepas*

**5. The function of Clitellum in Clitellata is .....**

- a) Secretes cocoon.  
b) Secretes mucus assists in transfer of sperm.  
c) Produces albumen.  
d) All of these.

**6. Which of the following have testicular nephridium?**

- a) *Scolopendra*  
c) *Nereis*
- b) *Hirudo*  
d) *Artemia*

**7. The body wall is dermo-muscular in .....**

- a) Annelida  
c) Mollusca
- b) Arthropoda  
d) Not a, b &c

**8. The function of .....is create a respiratory water current over gills.**

- a) Epipodite.  
c) Endopodite.
- b) Scaphognathite  
d) Basipodite.

**9. The Optic units in Arthropods compound eye is :**

- a) Retina  
c) Ocellus
- b) Ommatidium  
d) Labyrinth

**10. The function of Botryoidal tissue in *Hirudo* is.....**

- a) Respiration  
c) Protection
- b) Excretion  
d) Collecting food

**11. *Scolopendra* is Opithogeneate animal this mean:**

- a) Has posterior genital opening.  
c) Has one ovary
- b) Has two tesis.  
d) Has posterior anus.

**12. Cerebral ganglion of *Penaeus* gives nerves to:**

- a) Eyes, antennae & mandible.  
c) Eyes, antennae & antennules
- b) Eyes, antennae & maxilla  
d) Not a, b &c

**II –Give a complete account about two only:**

**[8 Marks]**

(a) Circulatory system of *Penaeus japonicus*.

(b) Genital system of Earth worm.

(c) i. Pseudohearts    ii. Lung-book    iii. Nephridium

## Answers

### I- (a) Complete the following:-

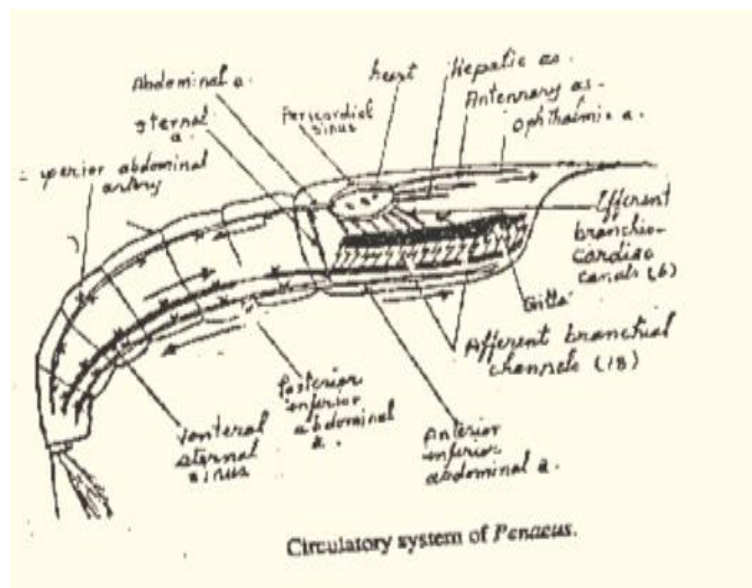
1. The female genital opening of *Penaeus* lie on thoracic segment 6<sup>th</sup> & the thelycum lie on the thoracic segment 8<sup>th</sup>.
2. Excretion of *Hirudo* takes place by 17 pairs of nephridia which opening on segments 7- 23.
3. Suboesophageal ganglion of *Scorpion* gives off nerves to head appendages, genital operculum, pectin & 2pairs of stigmata.
4. Coelom in Annelida performs different functions It provides turgidity, protection of the body by absorbing external shocks, acts as hydraulic skeleton. It helps in nutrition, respiration& excretion.
5. The blood of *Scolopendra* has no respiratory function but it perform other functions such as Transport & storage food, hormones are carried about & water content serves to withstand dessication .
6. The Circulatory system of *Scorpion* is open type & its heart consists of 7 chambers.
7. In *Hirudo*, the mouth has three serrated jaws. These jaws cause a characteristic triradiate wound on the body of the host.
8. The function of petasma is transfer sperm to female while the function of spermathecae is store the spermatozoa received from another worm during copulation
9. According to the presence of hard exoskeleton in Arthropoda, appear new characters presence of joints, ecdysis, reduced coelom& separation of muscles.
10. Autotomy in Arthropoda means automatic breaking off an appendage, While tagmosis means fusion to form major body regions e.g. head.

### (b) Choose:

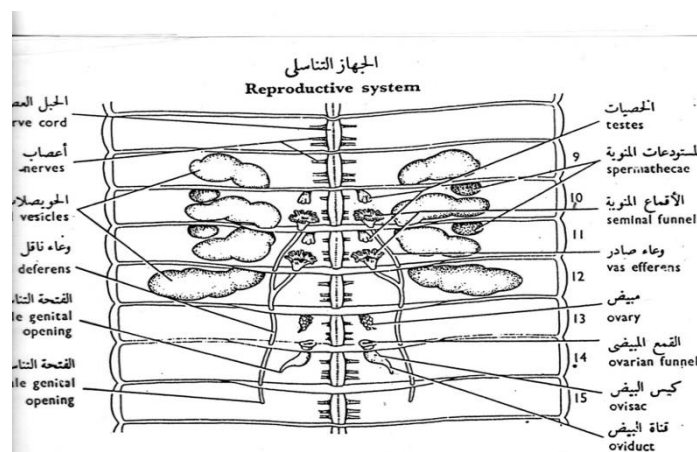
1. d) Jointed appendages      2.d) Coxobrachiaie      3. c) Polychchaeta
4. a) *Scorpion*      5. d) All of these      6.b) *Hirudo*
7. a) Annelida      8. b) Scaphognathite      9.b) Ommatidium
10. b) Excretion      11. a) Has posterior genital opening
12. c) Eyes, antennae & antennules

**II – Give a complete account about two only:**

**(a) Circulatory system of *Penaeus japonicus* open circulatory system.** The heart is hexagonal pierced by three pairs of ostia. The blood leaves the heart through 5 arteries anterior & one artery posterior. Ophthalmic to the eyes, 2 Antennary to antennule & antennae, 2 hepatic to the digestive gland. Abdominal artery: arises posteriorly and splits into: Superior abdominal artery and Sternal artery. All these arteries branch extensively in the various organs. All the vessels have open ends and communicate with a system of sinuses. The sinuses communicate with the sternal sinus. Sternal sinus sends 18 channels to gills to be aerated, 6 main branchiocardiac open into the heart.



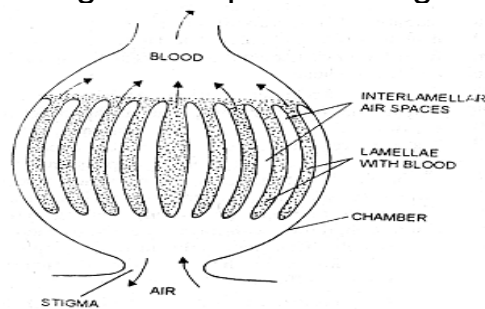
**(b) Genital system of Earth worm.** The earthworm is hermaphrodite. Fertilization occurs inside the cocoon, development is direct without any larvae.



(c) i. Pseudohearts    ii. Lung-book    iii. Nephridium

i. **The pseudohearts** found in the circulatory system of Earth worm, there are 5 pairs of transverse contractile vessels running on both sides of the oesophagus in segments 6-10, connecting the dorsal blood vessel with the ventral blood vessel, These hearts contain valves to regulate the direction of movement of the blood.

ii. **Lung-book:** Respiration of Scorpion takes place by four lung books, they open on segments (3-6) of the mesosoma by stigmata. Each lung book is formed of air chamber with numerous lamellae which project into a haemocoelic sinus and in the internal space of these lamellae blood circulates respiratory exchange takes place through thin walls of lamellae



iii. Nephridium

Excretion of Annelida takes place by nephridia. Each nephridium has oval syncytial mass of protoplasm containing a long, convoluted, ciliated canal, the **nephridial tubule** (highly convoluted and mostly ciliated tubule). It opens internally by a ciliated funnel or **nephrostome**. Posteriorly the tubule opens externally by a contractile **nephridiopore**. The chief nitrogenous waste is ammonia. Nephridia collect waste from coelomic fluid and blood by diffusion. The nephridia also possess the power of **osmoregulation**.

