

Date: 9/ 1/2023

Time: 2 Hours

Mark: 70

الامتحان في ٢ صفحات

**Answer the Following Questions:**

**Question one:**

(21 marks)

**Put ✓ or ✗ and correct the false**

- 1- Holoplankton spends only a part of their life cycle as drifters.
- 2- In all decapods (meroplanktonic or holoplanktonic), the stages of the life cycle are nauplius, protozoa, and a mysis.
- 3- In copepods there are 5 nauplii (N1-N5) stages and 6 copepodite stages (C1-C6), the terminal copepodite being the adult
- 4- The ascidians are holoplanktonic pelagic tunicates.
- 5- Tintinnids are planktonic amoebozoans with lorica that is usually made of protein.
- 6- In copepod. Jumps hops and escape responses use a combination of the thoracic legs and the urosome.
- 7- In copepods, the body is based on metameric segmentation (like annelids), with one set of appendages per segment
- 8- Zooplankton is heterotrophs and copepods are the most abundant group.
- 9- In copepods, the First & 2<sup>nd</sup> antennae are sensory, not for locomotion
- 10- Calanoides Contain both egg carriers (minority) & egg scatters (predominate)
- 11- Although Euphausiid like krill is an important member of zooplankton, its biomass is very low and never exceeds copepod biomass even in Arctic water.
- 12- In the hydrozoan life cycle, medusae are always absent with hydroid producing the egg
- 13- The prokaryotic cyanobacteria are the smallest and most abundant phytoplankton in the ocean.
- 14- Although scyphozoans are primarily grazers (herbivores), a few are specialized to harbor symbiotic algae.

**Question two:**

(16 marks)

**Answer the following items:**

- 1- Discuss the Ecology of the coelenterate Planktonic phase? (4 marks)
- 2- Compare between the three main orders of copepods? (6 marks)
- 3- Many zooplankton undergo diurnal vertical migration (DVM). Explain what DVM is, and hypothesis that seems to explain why DVM occurs? (6 marks)

**Question three:**

(18 marks)

**choose the correct answer**

- 1- which one of the following organisms can be used as an indicator of water quality changes?  
a)Diatoms b)Dinoflagellates c) Cyanobacteria d) nauplii
- 2- They are sessile freshwater ciliates.  
a)Favella b)Vorticella c) Tintinopsis d) Helicostmella

- 3- Relative to many other groups, they are easy to collect undamaged and maintain in the laboratory with success  
a) Medusae    b) larvaceans    c) Copepods    d) Siphonophores
- 4- Usually known as Opossum shrimps because of their ventral marsupium.  
a) Amphipoda    b) Isopoda    c) Mysidacea    d) Euphausiida
- 5- They are generally the most fragile of the gelatinous zooplankton --  
Characterized by fused plates like comb  
a) Ctenophores    b) siphonophores    c) medusiformes    d) hydromedusae
- 6- Entirely marine phylum - hermaphrodites. A thin translucent body - A head with teeth, grasping hooks and often with protruding eyes  
a) Annelida    b) Polychaeta    c) Chaetognatha    d) hookworms
- 7- Initially feed on phytoplankton, but switch to copepods as algae biomass falls  
a) Euphausiid    b) Polychaetes    c) Chaetognatha    d) tunicates
- 8- In pelagic tunicates, the mucous feeding net is secreted by  
a) Spiracles    b) Endostyle    c) pharynx    d) stomach mucous glands
- 9- Its herbivorous filter feeding marine cladocerans, removing cells down to 2  $\mu\text{m}$   
a) *Penilia*    b) *Daphnia*    c) *Podon*    d) *Evadne*
- 10- In Hydroidomedusa the ciliated planula typically developing into  
a) immature medusa    b) motile gastrula    c) benthic stage    d) adult medusa
- 11- Which type of organism is a predominant constituent of the meroplankton?  
a) larval forms of benthic invertebrates    b) phytoplankton    c) copepods    d) dinoflagellates
- 12- Which of the following groups of plankton is nonmotile?  
a) dinoflagellates    b) diatoms    c) tintinnids    d) cyclopoids

**Question four:**

**(15 marks)**

**Complete the missing parts: .....**

- In pelagic tunicates, the mucous feeding net is secreted by ... (1).....
- Most planktonic forms of copepods belong to them, and this group contains the largest free-living species and 90%<sup>+</sup> of the diversity ... (2).....
- Group of pelagic tunicates creates an elaborate mucus feeding structure (house) to concentrate small plankton for feeding ... (3).....
- Is a Malacostracan holoplankton with and external gills, 2 pairs of antennae and well-developed eyes. .... (4).....
- Curiously (with interest), a group of crustacean zooplankton are known to have pedogenesis, a process where embryos developing in a mother's brood pouch come to have their own eggs in their own brood space... (5)....
- The only zooplankter recognized by the public, Characterized by specialized stinging cells called cnidocytes ..... (6).....
- In Siphonophores colonies with polyps specialized for 4 typical tasks, ... (7)....., ... (8).....
- Tintinnids traditionally have been divided into two groups .... (9).....
- In this group of molluscs zooplankton, the foot is modified into 2 lobes for swimming- they secrete mucus feeding nets ... (10)...

• *With Best Wishes*

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*Dr. Wael El Tahamy*

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