Avinashilingam Institute for HomeScience and Higher Education for Women

(Deemed to be University), Coimbatore -641043

Bachelor's Degree Examination – November 2018

I Semester

Class : I UG **Time : 3Hours**

Major : Zoology **Marks 100**

18BZOC02 - Invertebrata II

PART - A **10X2 = 20**

Choose the correct answer

1. Polychaetes are

   a. marine b. carnivorous c. fresh water d. marine and carnivorous

2. Swollen ring like structure formed by the four segments 14^{th} to 17^{th} is

   a. clitellum b. spermatheca c. genital pore d. setae

3. Feeding habit of leech is

   a. sangivorous b. herbivorous c. carnivorous d. graminivorous

4. The coelom developed from the gut is

   a. acoelom b. pseudocoelom c. schizocoelom d. enterocoelom

5. Peripatus shows the character of both

   a. annelida and arthropoda b. annelida and mollusca
   c. arthropoda and mollusca d. echinodermata and annelida

6. Green gland is seen in

   a. amoeba b. planaria c. penaeus d. hydra

7. In Pila the prostomium is formed of a chitinous substance called

   a. calcium b. calcium carbonate c .conkiolin d. chitin

8. In Arthropods digestive system is well developed and contains

   a. radula b. pancreas c. hepatopancreas d. radula and a hepatopancreas

9. The function of pedicellaria in starfish is

   a. offense and defence b. to capture small prey
   c. clean the surface of the body d. all the above

10. The pharynx of starfish is surrounded by the chewing apparatus called

    a. Platus lantern b. Aristotles lantern
    c .Socrates lantern d. Tiedmanns bodies

Part B **5 X 6=30**

Answer the following

Answer should not exceed 400 words or two pages

11.a. Enumerate the general characters of Annelida.

or

b. Describe the excretory system of earthworm.

12. a. Review the steps involved in formation of cocoons in leech.

or

b. Write about the types of metamerism.

13. a. Bring out the general characters of Arthropoda.

or

b. "Limulus is living fossil " – Justify.

14. a. Sketch the process and events of torsion.

or

b. Discuss the structure of the Pallial complex.

15. a .List out the general characters of Echinodermata.

or

b. Distinguish between aboral and oral structure of starfish

Part C **5 x 12=60**

Answer the following

Answer should not exceed 800 words or four pages

16. a. Classify the major classes of phylum annelid with an example

or

b. Relate the structure and function of the digestive system of earthworm.

17. a. Describe the excretory system of annelids.

or

b. With a neat labelled sketch explain the digestive system of leech.

18. a. "The larval forms are important in Crustaceae" – Justify.

or

b. Categorise the thoracic and abdominal appendage of prawn.

19. a. Give a report on the economic importance of molluscs.

or

b. Explain the circulatory system and course of circulation in Pila.

20. a. Describe the water vascular system in star fish.

or

b. Discuss the larval forms of Echinodermata.

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Scheme of valuation

PART - A **10X2 = 20**

Circle the correct answer

1. d. marine and carnivorous

2. a. Clitellum

3 a. Sangivorous

4.d. Enterocoelom 5. a. Annelida and Arthropoda .

6. c. Penaeus

7. c .conkiolin

8. d .radula and a hepatopancreas

9. d. all the above

10. b. Aristotles lantern

PART –B

11. A.General character of annelid: soft,elongated and cylindrical-bilaterally symmetrical-organ system grade- true coelomate-dermomuscular-metamerism-setae-ciosed blood vascular system-segmentally arranged nephridia-cerebral ganglia-double ventral nervecord-hermaphrodites-regeneration—development direct or indirect-Trochophore larva.

    b. Earthworm excretory system 1.Meganephridium- in 19^{th} segment -nephrostime-septal excretory canal-supraintestinal excretory canal 2.Micronephridia minute funnel shaped tubule in 14^{th} segment-nephridiopore-no nephrostome –called as exonephric nephridia 3.Phrayngeal nephridia-paired either side of alimentary canal 5^{th}-9^{th} segmentducts open inte oesophagus –nephrostome absent.

    12 a .Formation of cocoon: Snow white frothy girdle by glandular skin secretion 9,10 and 11^{th} segment –clitellar gland-leech withdraws anterior end by rhythmic movements-plug-anterior polar piug –posterio plug- laid in moist place-cocoon harden –by air.

    b.Types of metamerism :1. True2. Pseudo 3.Homonomous 4. Heteronomous 5.External 6. External and Internal 7.Complete and 8. Incomplete metamerism.

    13 a.Arthropoda general character: Largest phylum - 80 % species- bilateral symmetry-triploblastic- haemocoel -tagmatization distincts thead –chitin jointed appendages-gill or trachea or booklung- circulatory open type-endocrine system-green gland or malpighian tubules-compound eyes=sexes separate –gonoducts-development direct or indirect.

    b.Limulus the horse-shoe crab member of Xiphosura survive till today –living fossil-many character unchanged for 200million years-resemblance to fossil trilobite –scorpions-booklungs-extinct Eurypterida—do not ressemble any creature in thewworld so separate subphylum or phylum.

    14. a. Process and events of Torsion : larva of gastropod is symmetrical – 1. Ventral flexture 2.Differential growth 3. Anti-clockwise rotation. Events in torsion : 1. Looping of alimentary canal 2. Twisting of nervous system 3. Displacement of mantle cavity 4. Change in the possition of Ctenidia 5. Displacement of Auricles 6.Coiling of shell and visceral mass 7. Degeneration of structure on the left side 8. Loss of symmetry.

b. Pallial complex : Cavity lying between body and mantel is mantle cavity-contains number of organs called mantle or Pallial complex 1.Ctenidium 2.Rectum 3. The genital duct 4. The epitaenia 5.The anterior chamber of the kidney6. Pulmonary Sac 7. The osphradium 8. Pseudepipodium .

15. a.Echinodermata general character: Marine, spiny skinned- bilateral symmetry-triploblastic-coelomate- radially symmetrical-secondary character-organ grade-well developed endoskeleton- water vascular system with tube feet-open system circulatory-excretory systemabsent-pedicellariae-development indirect-larval forms bilaterally symmetrical.

b.Aboral view of starfish- upper convex surface –immovable calcareous spines plates or ossicles-dermalpores-papula respiratory function-pedicellaria-madriporite-bivium-trivium

Oral view of starfish – flat, dark orange to purplish – oral or actinal surface – mouth, peristome ambulacral grooves, tube feet or podia, ambulacral spines, sense organs.

PART – C

16 a.Phylum Annelida-Eight classes

1Polychaeta Chaetopoda - Nereis 5. Echiuroidea - Echiurus

2.Oligocheata -Tubifex 6.Siphunculoidea - Sipunculus

3.Hirudinea -Leech 7. Priapulida - Priapulus

4.Archiannelida -polygordius 8. Myzostomaria - Myzostoma

b. Digestive system of earthworm – alimentary canal: mouth buccalcavity, pharynx, oesophagus, gizzard, stomach, intestine: pre-typhlosolar region, typlosolar region, post-typhlosolar region, anus. Digestive gland: pharyngeal, gastric, intestinal gladns and intestinal caeca.

17.a.Excretary system of Annelids : 1. Nephridia 2. Coelomoducts 3. Nephromyxia 4.Excretophores 5.Chloragogen 6. Botryoidal tissue 7.Ciliated organs

b.Digestive system of Leech: preoral chamber and mouth-Buccal cavity-Pharynx-Oesophagus-Crop-stomach :– Intestine – Rectum –Anus –Food –feeding or ingestion.

18 a.. Crustacean larval forms: Development direct or indirect -1. Nauplius 2.Metanauplius 3.Cypris 4. Kentrogen larva 5. Zoea 6. Alima 7. Megalopa 8. Mysis and 9. Phyllosoma.

b. Thoracic and abdominal appendages of prawn :First three thoracic appendages – Feeding I maxillipedes - II maxillipedes – III maxillipedes.Remaining five is for walking-First three pairs are chelate legs –Last two pair non chelate.

Abdominal Six pairs –Pleopods or Swimmerets for swimming - second to fifth biramous . In male coupulatory organ-petasma -.in female thelycum.

19 a..Economic importance of Mollusa : 1.Beneficial :Food-Bait –Buttons and Pearls-Ornamentation-Dyes and Ink-Medicine-cradles.2.Destructive Molluscs-Herbivores – carnivores – Destructive pelecypods – Parasites – Intermediate hosts.

b.Circulation and Course of circulation in Pila: Open type –Blood –pericardium-Heart –Arteries-Sinuses: Peri- visceral peri- intestinal-Branchio-renal –pulmonary . Veins afferent Efferent Ctenidial Afferent and efferent renal - pulmonary renal.
Course of circulation –Cephalic and visceral aortae – to all organs –efferent renal-auricle-ventrical-cephalic.

20 a. Water vascular system of starfish –ring canal, stone canal, madreporite, tiedmann bodies, polian vesicles, radial canals, lateral canals, tube feet. Functions: locomotion, feeding, diffusion of respiratory and nitrogenous wastes.

b.Echinoderm larval forms: 1. Dipleurula 2. Bipinnaria 3. Brachiolaria 4.Ophiopluteus 5.Echinopleuteus 6. Auricularia 7.Doliolaria of Holothuroidea 8.Doliolaria of crinoidea 9. Pentacrinoid larva.

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