Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous)

Department of Zoology

Academic Year: 2018-2019

Home Assignment-I for B.Sc. I

INDEX

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Vivekanand College, Kolhapur (Autonomous)
Department of Zoology

Date: 11/08/2018

NOTICE

All students of B.Sc. I are hereby informed that, submit Home Assignment-I for Continuous Internal Evaluation (CIE) of B.Sc. I Semester I up to 21/08/2018 at Zoology Department (Lab.49). The questions for Home Assignment-I are given below. Submission is mandatory to all the students.

Q. Attempt the following. 10M

1. Explain life history of *Ascaris*
2. Explain nutrition in protozoa.
3. Explain water vascular system in Asteroidea.
4. Explain mechanism of osmoregulation in freshwater and marine water fishes.
5. Explain parental care in Amphibians.

Head Department of Zoology

Head,
Department of Zoology
Vivekanand College,
Kolhapur (Autonomous)

VIVEKANAND KOLLEGE, KOLHAPUR (AUTONOMOUS)
DEPARTMENT OF ZOOLOGY
Academic Year: 2018-2019
B.Sc. Part I- Home Assignment - I
Attendance

Sr. No.	Roll No.	Name of the Student	Attendance
1.	7501	Admuthe Vishal Vijay	P
2.	7502	Bagwan Siddhika Jahidahmad	P
3.	7503	Bavache Dhananjay Kiran	P
4.	7504	Baygol Anil Parshuram	P
5.	7505	Benade Dhanashri Krushnat	P
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11.	7511	Chougule Prajakta Balaso	Ab
12.	7512	Bhosale Sohan Sanjay	Ab
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16.	7516	Gaikwad Apeksha Yashavant	P
17.	7517	Gangalmale Satpal Kerappa	Ab
18.	7518	Gavade Shivraj Vishnu	Ab
19.	7520	Ghatage Hrutik Avinash	Ab
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37.	7538	Kazi Tabasum Arif	P

38.	7539	Kesarkar Prajakta Rajaram	P
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Aakanksha Harishchandra Khade

10/10

Signature of Supervisor 10

" ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार "
- शिक्षणमहर्षी प. पू. डॉ. बापूजी साळुंखे

Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR

Class B.Sc. Part-I Div 'B' Roll No. 7540

Suppliment No. 1 Subject Zoology

Test / Tutorial No. Home Assignment - I

VERTEBRATES

Q.1 Explain the mechanism of osmoregulation in Fresh water and marine water Fishes.

Ans: Vertebrates eliminate some metabolic waste through the gut & the skin, but most are eliminated through special excretory organ kidneys. In elimination Fishes have a particular in that their gills & oral membranes are permeable both to water & salts.

Defination -

Osmoregulation is the process of maintaining an internal balance of salt & water in the body.

- The maintainance of constant osmotic pressure in the fluids of organism by the control of water & salt concentrations. Osmoregulation is the active regulation of osmotic pressure of body fluid. In the pises kidneys as well as gills take part in osmoregulation.

Osmoregulations - Animals maintains osmolarity of their fluid of constant level as environmental changes osmoregulators. Fishes are osmoregulators. The typical Fish kidney is made up of many individual units or nephrons each consisting of renal corp.

uscles & kidney tubules. The tubules join in collecting ducts that finally lead to the outside through the mesomephric ducts. The malphigian body is made up of a glomeculus, ablood vessels. tightly coiled with affecent & effecent aterioles & encapsulate by thin kidney cells - Bowman's Capsule.

The glomeculus & Bowman's capsule together acts as ultraFilter. The excretory Fluid undergoes alteration on its wall through the tubules where glucose, various minerals & other solutes, water are reabsorbed into blood by using energy control of Filtration & reabsorption takes place through haemone action. Thyroid, cortex, hypothalamus, pituitary are involved in this regulation.

Osmoregulation in Fresh water Fishes -

In Fresh water, the Fish body has a higher Contration of salt than the external environment. Consequently there is chance to loose salt & absorb water. To combat this & to kegp water salt balance in body Fluid Fresh water Fish have very efficient kidneys that excrete water quickly. They even absorb reabsorb salt From their urine before it is ejected to minimize losses

Because of different between internal & external osmoregulatory water enters into the body of Fish. There are gills, oral membranes are the cites of active ion absorption which is necessory to replace salt losses various ions absorbed like Na^+, Ca^{++}, SO_4^-, Br^-, Li^- Ca^{2+}

By gills & kideneys osmoregulation is accured is in Fresh water Fish.

Osmoregulation in Marine Fishes -

- Marine Fishes live in a medium that is hypertonic to the body fluids thus they tend to loose water & gain salts through their osmotic membrane.
- To combat this, water loss is prevented by eliminating hypertonic urine (less water). Marine fishes also drink vast amount of water.
- Marine Fishes are forced by osmotic condition to conserve water; urine volume is greatly reduced compared to the freshwater species upto 50% of N waste of marine fishes may be eliminated.
- Marine Fishes eliminate their (excess) super salts which come mainly from food & sea water through the gills.

Importance of osmoregulation in Pisces -

- It maintains an internal balance of salt & water.
- Osmoregulation is the active regulation of levels of water & salts in tissues & cells is a way that maintain homeostasis.
- Balanced salt & water concentration in the tissue fluid influence the health & function.

Q. 2 Explain Parental care in amphibia.

In amphibia there are many devices for the protection of eggs during the early stage of development & the youngs. parental care is the care of the eggs or the youngs until they become able to protect themselves from predator.

1) Protection by means of Nests, Nurseries & shelter

Different amphibians animals constant nests or shelter of leaves or other material in which the eggs are deposited & the youngs are developed.

a] In endosure in the water -

A Frog known as Hyla Fabee protects it's progeny by building basin-shaped nest or nursery in shallow water on the borders of the pond. The mud nest constructed by female. Female dig a hole of 8 to 10 cm depth; the mud which comes out is used by female to construct wall around the hole.

The inner wall is smoothened by the flat webbed hands & the bottom is also levelled by belly & hands.

b] In the holes near water (From nest)

Rhacophorus Schlegelli (Japanees Tree Frog) makes burrow in the moist soil near pond edge. This hole is filled with foam which is secreted by female cloacal section. Male & female make a funnel into the pond from hole. The eggs are deposisted into foam

c] In transparent gelatinous bags -

In Pheynisalous bisoi the eggs are large & enclosed in sausage shaped transparent membranous bag secreted by female & is left in the mountain streams whole development take place within eggs. No gills have been absorbed & large tail serves as a breathing organ of young ones

Signature of Supervisor_____

" ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार "
- शिक्षणमहर्षी प. पू. डॉ. वापूजी साळुंखे
Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR

Class B.Sc Part-I Div 'B' Roll No. 7640

Suppliment No. 2 Subject Zoology

Test / Tutorial No. Home Assignment No.:

d] On trees or in mass away from water-
Hylods (American Frog), deposits its eggs in moist places or under the stones or moss or plant leaves.

2) Direct nursing by parents-
a] Tadpoles transported from one place to another-
Small South american Frog like Phyllobates Carry well developed tadpoles on their backs. Tadpoles adhese by their suckers like lips & flattened abdomen & thus they are carried from one place to other.

b] Eggs protected by male-
The eggs of Montophrye robusta tudy together by an elastic gelatinous envolope forming a dump other which the male site for development. It may outside wate

c] Eggs carried by Parents-
Alytes (European toad) male winds the strings of eggs on back by adhession of gelatinous secretion. Here they retained until the tadpole are ready to be batched. This male Frog like in most place.

INVERTEBRATES

Q. Explain the life history of Ascaris.

Stage-I Copulation & Fertilization

Copulation occurs in the small intestine of host (man) where the adults (worm) lives. During copulation the male orients its body at right angle to that of the female in such a way that its cloacal aperture opposes the vulva of the female

Stage-II Eggs in Foetus & structure of eggs.

The eggs are laid in the hosts intestine which are deposited outside along with faces of host. A female ascaris roughly about 2,00,000 eggs daily. The eggs production is astounding. When the eggs are passed in faeus, their further development is largely ~~devele~~ dependent on oxygen tention, moisture content & temperature in aquatic moisture & oxygen supply in the hostis intestine the fertilized eggs do not start their further development.

Stage III Cleavage (Segmentation of Fertilized egg) & early development

Cleavage of fertilized eggs is of spiral & determinate type. The first division is transverse which results in a dorsal cell & a ventral cell. The dorsal cell divides vertically into an anterior & posterior cell. While the ventral cell divides horizontally into an upper & a lower cell. The four celled embryo thus formed, is first T shaped appearence. In the next cleavages, then called embryo becomes the is

Stage - IV Infection of new host

Man aquiees infection when the eggs containing Rhabditoid laeva it Swallowed by the bost along with eaw vegetables, impeopeely cooked vegetables oe with the deinking watee. Infection is beought about by ingestion of viable eggs which aee teiggeeed to batch.

Stage V - Liigeation theough the lungs.

In the small intestine by the action of hosts digestive juice the eggs shells dissolve the juveniles batch out. It peefoems active theasbing movement & boees theough the intestinal epithelium to entee in the hepatic cieculation which caeeies it to the livee.

Stage VI - Reentey into the stomach & the small intestine

About six days stay theee, the laeva moults theee foe second time, then they pass theough teachea with cough & when the cough is swallowed pass to the oesophyeus, stomach & finally to the intestine. The laeva heee undeego moulting foe two times & become adults.

Stage - VII Sexual matueity & egg libeation -

The laevae on eeaching theie habitat geaws into adults woems & become sexually matueed in about 6-10 weeks time. The geavid female beggings to discbaege in the stool of bost within about two months feom the time of infection. The cycle of Ascaeis lumbeicoids is again eepeated.

Q Explain water vascular system in asteroidea.

The water vascular system is modified into part of coelom & it consist of water filled canals having certain corpuscles. It plays most vital role in the locomotion of the animal & comprises madreporite, stone canal, ring canal, radial canal, Tiedmann's bodies, lateral canals & tube feet.

Madreporite - The water vascular system starts from the madreporite is a rounded, calcareous plate occuring on the aboral surface of the central disc in inter-radial position. Its surface bears a number of radiating, narrow, straight or many grooves or burrows. Each furrow contains many minutes pores at its bottom

Stone canal - The ampulla opens into S-shaped stone canal. The stone canal extends downwards & opens into a ring canal, around the mouth. The walls of the stone canal are supported by a series of calcareous rings. The lumen of stone canal is lined by very tall flagellated cells. In embryonic stage & in young asterias. the stone canal remains a simple tube but in adult Asterias, lumen of stone canal passes a prominent ridge with two spirally coiled lamellae which by branching become more complicated in structures. During its course, the stone canal is ensheathed by wide. thin walled tubular coelomic sac, called axial sinus.

Ring canal - The ring canal or water ring is located to the inner side of the peristomial ring of ossicles & directly about (coral) to the hyponeural ring sinus. It is wide & pentagonal or five sides.

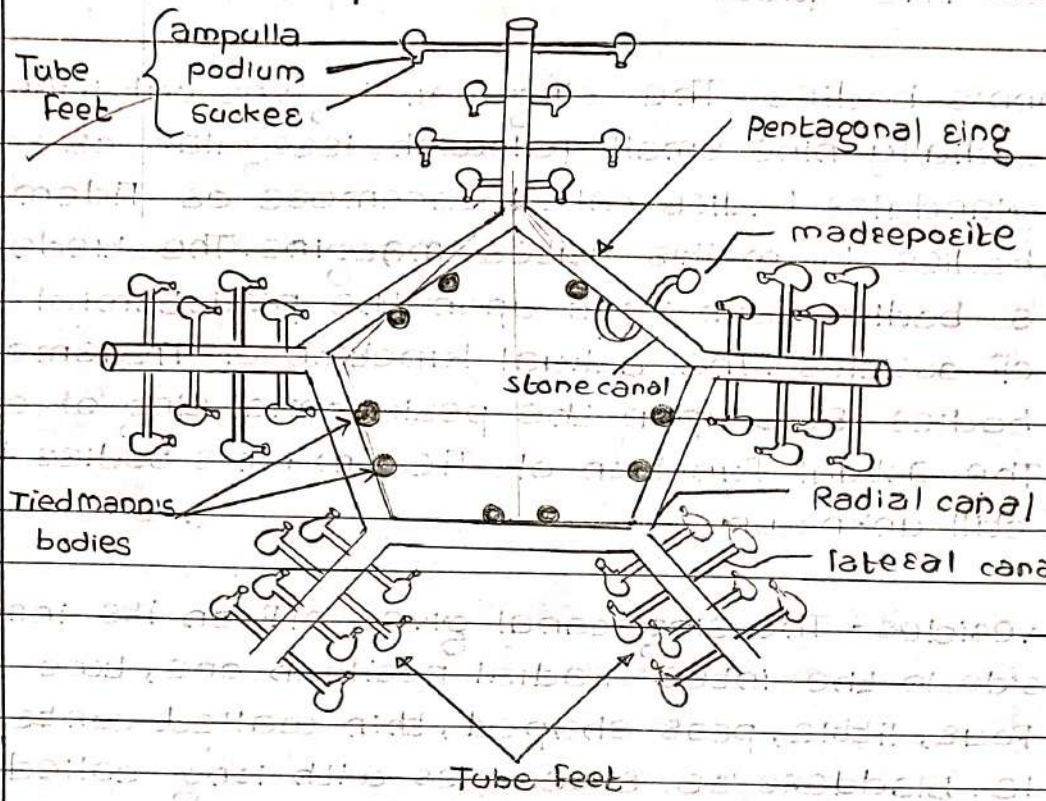
Tide mann's bodies - The ring canal gives out inter-radially nine small yellowish, irregular, or rounded glandular bodies called racemose or Tidemann's bodies from it's outer margins. The tiedemann-s bodies rest upon the peristomial ring of ossicles. The actual function of Tiedemann's bodies rest upon the peristomial ring of ossicles The actual function of Tiedemann's bodies is still unknown.

Polian vesicles - The ring canal gives off on its inner side in the inter-radial position one, two or four, little, pear shaped, thin walled contracti-le bladders or reservoirs with long called polian vescicles. They are supposed to regulate pressure inside ambulacral system & to manu-facture amoeboid cells of ambulacral system.

Radial canals - From it's $outer surface, the ring canal gives off a radial water conalinto each arm that runs through out the length of the arm & terminates as lumen of terminal tentacles

Lateral canals - In each arm the radial canal gives out two series of short, narrow, transverse branches called lateral or podial canal each lateral canal is attached to the base of tube foot & it is provided with a valve to prevent backward flow of fluid into the radial canal.

Tube Feet - These are four rows of tube feet in each ambulacral groove. A tube foot or podium is hollow, elastic, thin walled, closed cylinder or sac-like structure having an upper sac like ampulla.



Q. Explain the nutrition in Protozoa.

Protozoans have a wide range of the nutrition method some of them are as following

Holozoic - Majority of protozoa nutrite holozoically i.e like animals a solid food. The food of micro-organisms like bacteria, diatoms, rotifers, other protozoans, algae, small fragments of large animals & plants etc. This mode of nutrition essentially involves the process like intake of food i.e ingestion digestion, absoption & egestion of undigested residues.

Holophytic- Protozoa with chlorophyll or some allied pigment can manufacture complex organic food like those of green plants, from simple inorganic substances e.g. Euglena, Noctiluca, often these are many protein bodies called pyrenoids which are the centre of photosynthesis.

Saprozoic- Some protozoa absorb complex organic substances in solution or on the ~~road~~ dead living animals through the body surface by the process of osmosis called osmotropy. Saprozoic forms need ammonium salts, amino acids or peptones.

Parasitic The parasitic forms feed either holozoically or saprozoically.

1) Food robbers-

The parasitic feeding upon the undigested as digested food stuffs of their hosts are known as food robber. such as some ciliate parasites like Nycotheres, Balantidium. These parasites feed holozoically on solid food particales.

2) Pathogenic-

The protozoans parasites causing harm to their hosts usually feed upon the living tissues of the host. They absorb liquid food through their general body surface e.g. Trypanasom plasmodium.

3) Caprozoic-

Certain free living protozoans are in habit of feeding upon the fecal matter of the other organisms like Clamydophore & Di mestigamoeba.

Mixotropic:-

Some protozoa nourish these selves by more than one method at the same time or at different time due to change in environment this is called mixotropic Nutrition.