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B.Sc Part 1 Paper II

e. Content for student of Patliputra University

Topic:- An essay on Parental Care in Amphibia

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Q. Write an essay on parental care in Amphibia.

Ans. The amphibians were the pioneers amongst the vertebrates to invade land. On coming to this new environment they had to face many hostile forces and they had to develop various ways and means to overcome the obstacles, naturally greatest importance was given to the perpetuation of race, so that they can ultimately win the struggle. Parental care is mostly a modification in the parents to take care of the offspring so that with a meagre number of eggs continuation of race can be maintained.

Ways by which Parental Care is Effected : There are various ways by which the parental care is manifested in amphibians.

(i) Selection of Site : Care at the eggs is restricted to the selection of site in certain frogs and toads. In *Rhacophorus schlegli* of Japan, the eggs are laid in a hole on muddy bank of river or pond the eggs are covered by foamy mucus to prevent desiccation. The eggs are washed out into the water of the river or ponds by the rain and development starts there. In *Triton*, the eggs may be fixed with the aquatic weeds by glues.

(ii) Frothing of Water : In *Rhacophorus maculatus* just after the laying of the eggs, the surrounding water is made frothy by the wriggling movement of hindlimbs, so that eggs are prevented from desiccation and also can escape the sight of enemies. Both males and females participate in this process.

(iii) Formation of Nests : After laying of eggs the parents take care of them by building nests. Three types of nests are encountered.

Mudnest : In *Hyla faber*, parents dig a small hole in the mud for the developing egg.

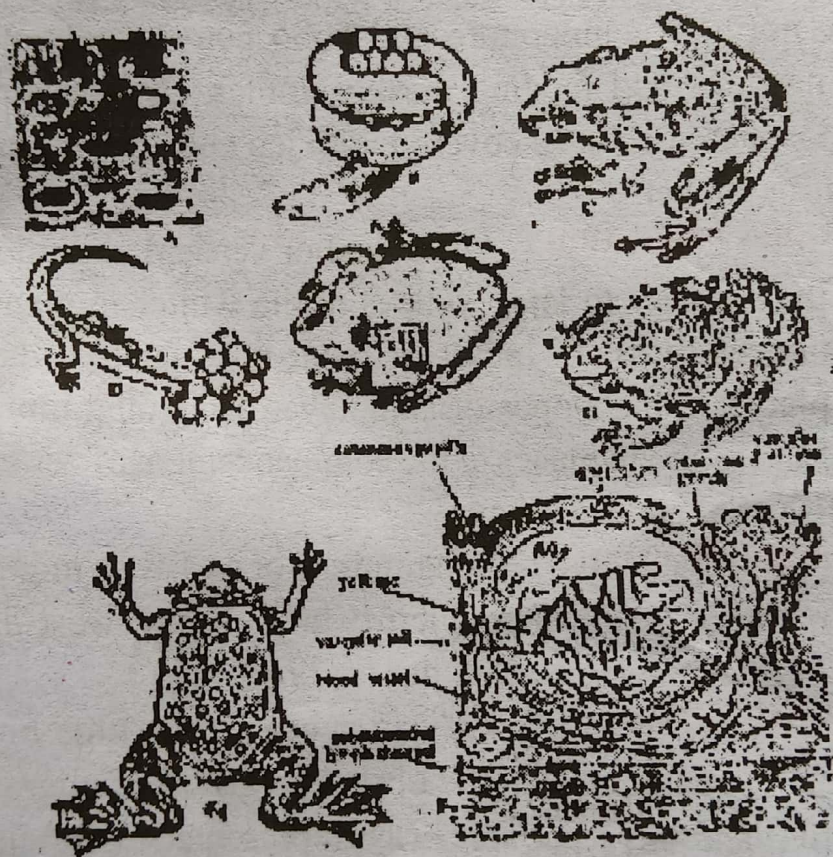
Leaf Nest : In *Phyllomedusa*, a South American tree-frog, the leaf nest built by folding the margins of the leaves.

Shoot Nest : *Triton* constructs shoot nest.

(iv) Carrying Eggs Over the Body : In *Hyla goeldii*, the females carry the eggs on their back in incubation pouches. The young come out as full-fledged frog but with tail the males of midwife toad show Peculiar type

of parental care. This type of food is abundant in France and Italy. Several malee are reported to collect round a female on land. Of the males, one becomes successful to grasp round the waist of the female. The male in this position massages and lubricates the cloacal region of the female. Where upon the females discharge the eggs. The eggs are fertilized during the expulsion of eggs by the sperms of the grasping male. After fertilization the eggs are wropped round the back of the thigh and he with draws himself into a hole near the pond. When the eggs are ready to hatch, the made carries them to nearest water the larvae come out.

(v) Carrying Larvae from are Place to Other : In *Arthroleptis*, the larvae are attached to the males and carried from one pond to the other. At the time of danger they are kept inside the buccal cavity.



(vi) Placement of Eggs in Safest Part : In oviparous cecilians as exemplified by *Ichthyophis* the body remains curled round the egg mass to guard them until hatching.

(vii) Viviparity : Extreme modification is observed in *Salamandra atra* and *S. maculosa*. The eggs are placed inside the uterine cavity where entire tadpole hood is completed. Two eggs are laid at a time. The larvae remain attached with the uterine wall by membrane which functions physiologically in the manner of a primitive placenta. The broad and vascular tail also helps in metabolic exchanges.