

Sexual Reproduction in Animals

1. How zygote is produced ?

- Zygote is formed by the fusion of male and female gametes. It is diploid in condition.

2. What is fertilization ?

1. Fusion of male and female gametes is known as fertilization.
2. Fertilization is of two types. They are
 1. External fertilization, 2. Internal fertilization.

1. External fertilization : If the fusion of male and female gametes occurs outside the body of animal, it is called External fertilization.

Ex : Earth worm, Frog, Fish etc.

2. Internal fertilization: If the fusion of male and female gametes occurs inside the body of animal it is called as internal fertilization.

Ex : Insects, Reptiles, Aves and Mammals.

3. What is Hermaphrodite?

- The Animal which consist of both male and female reproductive organs is called hermaphrodite.
- Ex:** Earworm
- Hermaphroditism is seen in some phyla. They are Protozoa, coelenterata, ptatyhelminthes, Nematoda, Annelida and mollusca.

4. What is synkaryon ?

- The structure which is formed by the fusion of male pronucleus with female pronucleus is called 'synkaryon ' or zygotic nucleus .

5. What is the function of spermatheca are present in the earthworm and these structures help the earthworm?

- Three pairs of spermatheca are present in the earthworm and these structures help the earthworm to store spermatozoa which accepted from another earthworm during copulation.
- During Copulation two earthworms meet in opposite direction.

6. What is Milt and Spawn?

- **Milt:** Thousands of Spermatozoa are discharged in a group from Testis in male frog. This called Milt.

Spawn: Large number of Eggs are released as a mass from ovaries in the frog. This mass of eggs is called as spawn.

7. What are amplexury pads? How do they help the frog?

- The pads which are present on the index fingers of the fore limbs in the male frog are called as Amplexury pads. They help in copulation.

8. What are the differences between spermatozoa and ovum of the frog?

| Spermatozoa | Ovum |
|---|--|
| <ol style="list-style-type: none"> 1. Haploid male gametes are called spermatozoa 2. Spermatozoa are produced from testis 3. The spermatozoa are microscopic 4. Spermatozoa is in arrow shape and it consist head, middle piece and a tail. 5. Spermatozoa has the capacity to motile and the tail helps in swimming 6. Group of spermatozoa is known as 'milt' | <ol style="list-style-type: none"> 1. Haploid female gametes are called as 'ova' 2. Ova are produced from ovaries 3. Ova is larger than spermatozoa 4. The ovum of frog is spherical and it has two of a poles. They are <ol style="list-style-type: none"> 1. Animal pole 2. Vegetal Pole 5. Ova have no capacity to motile 6. Group of ova is known as "spawn" |

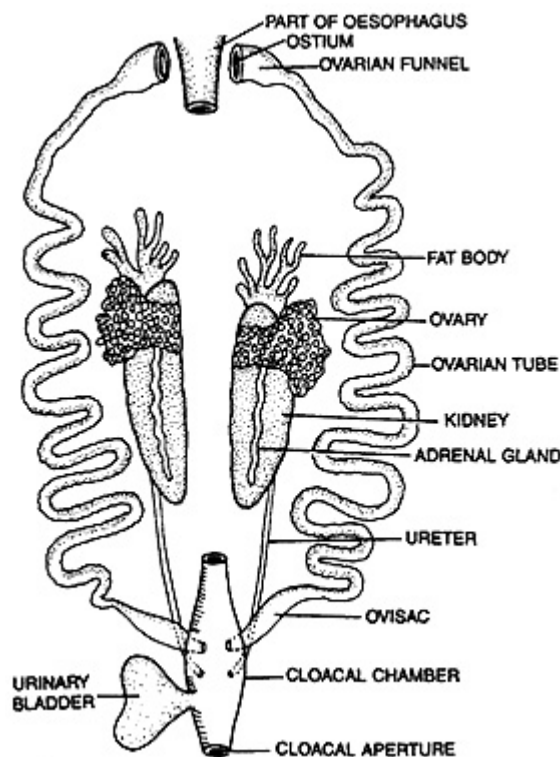
9. Describe male Reproductive system of Frog?

Male Reproductive system of Frog:

1. Male Reproductive system of the Frog consist of a pair of testis and a pair of urinogenital duct.
2. Testis are oval and yellow bodies. Each testis is attached to the kidney.
3. Inside the Testis there are number of coiled tubules called seminiferous tubules. Spermatozoa are produced in the seminiferous tubules. These tubules open into vasa efferentia.
4. Each Testis open into kidney through 10-12 tubes called vasa efferentia.
5. Spermatozoa that are produced in seminiferous tubules of Testis, enter into the kidney through vasa-efferentia.
6. The two urinogenital ducts that arise from kidneys run posteriorly and open into a chamber called cloaca in the male frog.
7. Urinogenital ducts are common for the passage of urine and spermatozoa.
8. The cloacal chamber is a common chamber for the passage of spermatozoa, urine and faeces.
9. Cloaca opens to the outside through cloacal aperture.

10. Describe the female Reproductive system of Frog?

1. The female Reproductive system of Frog consists of a pair of ovaries, a pair of oviducts, cloaca and cloacal aperture.
2. A pair of ovaries are attached to kidneys.
3. Ovaries are sac like structures with several lobes. They are greyish or blackish in colour.
4. Inside the ovary numerous chambers called follicles are present. Each follicle gives rise to a single ovum.
5. A pair of long folded tube like structures called oviducts are present on either side of the ovaries.
6. Each oviduct anteriorly opens into the body cavity through a ciliated funnel called 'ostium'.
7. Posteriorly, the oviduct is enlarged into a sac called ovisac or uterus. It stores the ova for sometime.
8. Oviducts open into the cloaca, and it is outside through cloacal aperture.
9. The ova which are released by ovaries into abdomen, are accepted by ostium and are passed through oviducts into cloaca.
10. Finally the ova are discharged out from cloaca through cloacal aperture.



11. Describe male Reproductive system of Earth worm?

Male Reproductive system of Earth worm:

- Male Reproductive system of Earthworm consist of mainly three parts. They are 1. Two pairs of Testis 2. Two pairs of seminal vesicles. 3. A pair of vas differens.
- Two pairs of Testis are present in 10th and 11th segments.
- Testis produce sperm mother cells. The sperm mother cells get mature into sperms or spermatozoa in the bag like structure called seminal vesicles.
- Matured sperms pass through the vas deference and are released out through male genital aperture
- Testis mature much earlier than the ovaries and this prevents self fertilization in "Earth worm".
- Three pairs of spermathecae are present in 7th, 8th, 9th segment of earthworm. Each segment consist of pair of spermathecae.
- During copulation 'spermatozoa' of earthworm are passed into the other earthworm and are stored in spermathecae.

12. Describe female reproductive system of Earthworm?

Female Reproductive system of Earth worm:

- Female Reproductive system of Earthworm consist of mainly three parts. They are 1. a pair of ovaries. 2. A pain of oviducts. 3. Female genital aperture.
- A pair of ovaries are present on each side of the ventral nerve cord in the 13th segment. Ova are

produced by ovaries. Each ovary has one oviduct, which opens to the outside through female genital aperture.

- Ova which are produced in ovaries are sent out from the body through genital aperture.

13. Describe about conjugation in paramoecium?

Conjugation in Paramoecium:

Conjugation is a method of sexual Reproduction in paramoecium. Paramoecium consist of two nuclei, they are

1. Macro nucleus 2. Micro nucleus.

- The paramoecium that undergo conjugation are called conjugants, at the time of conjugation, the two conjugants unite at their oral grooves.
- Cytoplasmic bridge is formed due to disintegration of pellicle. At the same time the macronuclei present in conjugants break down and finally disappear.
- The micro nucleus of each conjugant divides by one meiotic division, As a result four nuclei are formed in each conjugant. Three nuclei disintegrate out of the four nuclei and the remaining nucleus undergoes division again to form a small and a large nucleus. The small nucleus is called as 'male pronucleus or migratory pronucleus. The large nucleus is called as female pronucleus or stationary pronucleus.
- The male pronucleus of one conjugant passes through cytoplasmic bridge and fuses with female pronucleus, resulting in the formation of diploid zygotic nucleus or synkaryon.
- The conjugants get separated after the formation of synkaryon. Now they are called as exconjugants.
- Each exconjugant synkaryon divides thrice by mitosis and forms '8' nuclei. Out of '8' nuclei three nuclei undergo disintegration. Four nuclei act as macronuclei and the remaining are as micronucleus.
- Each exconjugant with a single micronucleus and four macronuclei divides twice and form four daughter paramoecia.
- After conjugation '8' daughter paramoecia are produced from two paramoecia i.e. from each

conjugant, four daughter paramoecia are formed

- Conjugation helps the paramoecia to recover the strength lost by repeated binary fissions.

Fill up the blanks

1. In house fly ____ helps in laying fertilized eggs.
2. In earth worm fertilization occurs in ____
3. Cocoon of earthworm is formed by ____
4. In megascolex, the testis are present in ____
5. The dark pigmented part of the egg of of frog is called ____
6. In the egg of frog, yolk is stored in ____ pole.
7. Amplexury pads of frog help in ____
8. Milt of frog consists of ____
9. The tubes that act as urinogenital ducts in frog are ____
10. The spawn of frog consists of ____
11. The function of spermathecae in earthworm in storage of ____
12. Fertilization in house fly is called ____
13. Exchange of nuclear material occurs in paramoecium during ____
14. In Earthworm 3 pairs of spermathecae are present in ____ segments.
15. Earthworm is ____ Animal.

Answers

1. Ovipositor
2. Cocoon
3. Clitellum
4. 10, 11, 15
5. Animal pole
6. Vegetal
7. Copulation
8. Spermatozoa
9. Ureter
10. Ova
11. Spermatozoa
12. Internal Fertilization
13. Conjugation
14. 7,8,9
15. Bi sexual