



INDIAN SCHOOL AL WADI AL KABIR

Class: VIII	Department: SCIENCE 2020 -21	Date: 06-12-2020
Worksheet No.: 14 With answers	Topic: REPRODUCTION IN ANIMALS	Note: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS:

1. Animals exhibiting external fertilisation produce a large number of gametes. Pick the appropriate reason from the following.

- i) The animals are small in size and want to produce more offsprings.
- ii) Food is available in plenty in water.
- iii) **To ensure better chance of fertilisation**
- iv) None of the above

2. Reproduction by budding takes place in

- i) **Hydra**
- ii) Paramecium
- iii) Amoeba
- iv) Bacteria

3. Aquatic animals in which fertilisation occurs in water are said to be:

- i) Viviparous without fertilisation.
- ii) **Oviparous with external fertilisation.**
- iii) Viviparous with internal fertilisation.
- iv) Oviparous with internal fertilisation.

4. After fertilisation, the resulting cell which gives rise to a new individual is the

- i) embryo
- ii) ovum
- iii) Foetus
- iv) **zygote**

5. In the list of animals given below, hen is the odd one out.

human being, cow, dog, hen

The reason for this is

- i) It undergoes internal fertilisation.
- ii) **It is oviparous.**
- iii) It is viviparous.
- iv) It undergoes external fertilisation.

6. Which of the following shows metamorphosis?

i) Ant ii) Frog **iii) Tadpole** iv) Fish

7. Which of the following is not viviparous?

i) Humans ii) Shark **iii) Snail** iv) Dolphin

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below.

i) Both A and R are true and R is the correct explanation of the assertion.

ii) Both A and R are true but R is not the correct explanation of the assertion

iii) A is true but R is false.

iv) A is false but R is true.

8. Assertion: Hens and Ducks are called Oviparous animals.

Reason: Oviparous animals lay eggs.

i) Both A and R are true and R is the correct explanation of the assertion.

9. Assertion: The fusion of sperm and ovum is called fertilisation.

Reason: Fertilisation occurs only in birds.

iii) A is true but R is false.

10. Assertion: Hydra produces young ones by the process of budding.

Reason: An amoeba reproduces by the process of binary fission.

ii) Both A and R are true but R is not the correct explanation of the assertion

II. BASIC CONCEPT LEVEL:

1. Define reproduction. **(The process by which organisms produce young ones of their own kind)**
2. What is the importance of reproduction? **(Hint-Reproduction ensures continuation of species from generation to generation.)**
3. Although 2 cells called gametes fuse, the product formed is a single cell called zygote. Justify. **(Hint: During fertilisation only nuclei of the sperm and the egg fuse to form zygote. Then sperm degenerates. The two gametes have 23 chromosomes each. So when they fuse they form a complete cell with 46 chromosomes with characteristics of both the parents).**
4. Name the gametes produced in humans. **(Sperm-male gamete and ovum-female gamete)**
5. What are the various methods of asexual reproduction? **(Budding and binary fission)**

III INTERMEDIATE LEVEL:

- 1) How is reproduction in hydra different from that in amoeba? **(Hint: Hydra reproduces by budding where a bud detaches from the parent which grows into complete organism. Whereas**

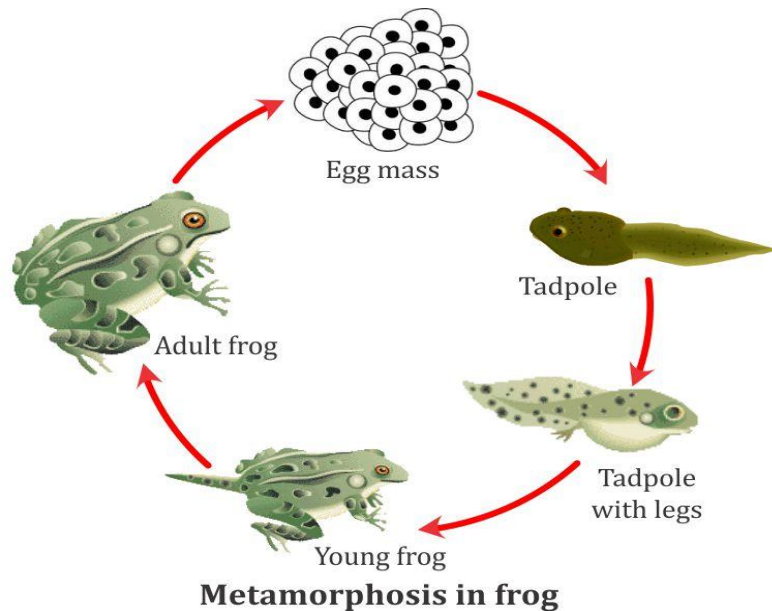
amoeba reproduces by binary fission. The process of reproduction begins by the division of its nucleus into two. This is followed by the division of its body into two.)

- 2) Why do only male gametes have a tail? (**Hint:** Because sperm need to be motile to reach non-motile egg in the ovary of female for fertilisation.)
- 3) What is metamorphosis? (**Hint:** The transformation of the larva into an adult through drastic changes where larva looks entirely different from the adult is called metamorphosis.)
- 4) Explain the life cycle of a frog with diagram.

The life cycle of a frog has three distinct stages:

Eggs → Tadpole (larva) → Adult frog

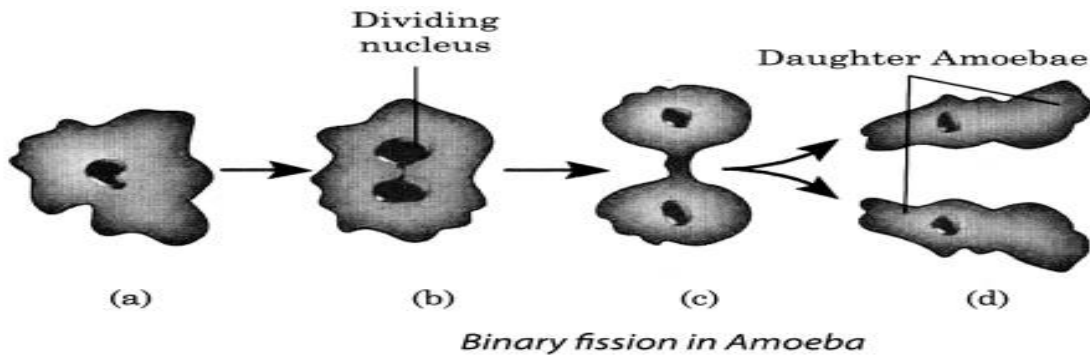
Female frogs lay eggs. These eggs hatch into larvae known as tadpoles. The tadpoles are fish-like and have gills, a tail and a small circular mouth. They can swim freely within the water. After few weeks, tadpoles grow and undergo some abrupt changes in their structure through cell growth and development. As a result of such changes, the tadpoles are gradually transformed into frogs.



- 5) Differentiate between external and internal fertilisation? (**Hint-Internal-** the fusion of male and female gametes takes place inside the body, there are high chances of survival of offspring, less numbers of eggs are produced, Cows, Hens, Human beings, etc. **External-**the fusion of male and female gametes takes place outside the body, there are low chances of survival of offspring, and large numbers of eggs are produced, Fish, Frog.)

6) Explain binary fission in amoeba with a neat labelled diagram.

Binary fission: In binary fission, a single parent cell is divided into two equal individual cells as in Amoeba. It divides into two by division of their bodies, each of them gets one nucleus and develops into separate individual. The figure given below shows how binary fission occurs in amoeba

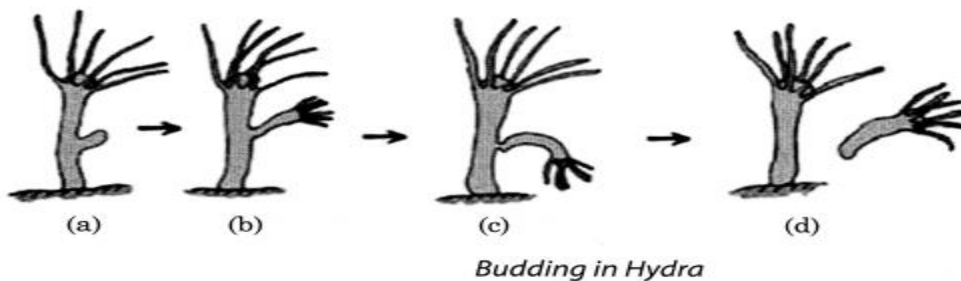


7) What is the difference between sexual and asexual reproduction?

Sexual Reproduction	Asexual Reproduction
Two parents are involved.	A single parent is involved.
Gametes are formed.	Gametes are not formed.
Fertilisation takes place.	Fertilisation does not take place.
Examples: humans, frog, bird, etc.	Examples: amoeba, hydra, sponge, etc.

8) With a neat labelled diagram explain the mode of reproduction in hydra.

Budding: In budding, the organism develops a bulge called bud which further develops into an adult organism and separates itself from the parent body to lead an independent life. This type of reproduction is shown in Hydra. The following figure shows budding in Hydra.



9) Explain what happens after a hen lays a fertilised egg? (Hint: After laying an egg, the hen sits on egg to keep it warm. Development of the chick takes place inside the shell. It takes about

3 weeks for the embryo to develop into a chick. After its development is complete, the chick comes out by bursting open the egg shell.)

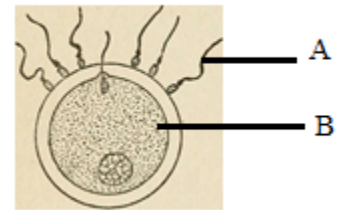
- 10) Why do frogs produce a large number of gametes? (Hint-Frogs produce large number of gametes because there are always chances of getting eaten by fish present in the water or getting washed out by wind currents and rainfall. In order to increase the chances of fertilisation, frogs lay more number of eggs.)

IV. ADVANCED LEVEL:

- 1) Briefly explain in-vitro fertilization. (Hint: It is a method in which ovum collected from a female's body is allowed to fuse with sperm collected from a male's body in an external medium or outside the body of the female. The zygote so developed is allowed to grow in vitro (i.e.in glass) for about a week and then implanted in the female's uterus where it further develops as a normal embryo. A baby born of this technique is often called a 'test tube' baby.)

- 2) Observe the given figure and answer the questions that follow.

- a) Label A and B- **Sperm and egg.**
b) Identify the process- **fertilisation**
c) What happens during the process and what is formed?



(Hint- the sperm nucleus fuses with the egg nucleus as a result of which a zygote is formed.)

- 3) How would you distinguish between an embryo and a zygote?

(Hint: Embryo- When a zygote divides repeatedly to form a ball of hundred cells. Foetus- An unborn baby in the uterus at the stage when all the body parts can be identified.)

- 4) Can the process of a child changing into an adult be called metamorphosis?

(Hint: No, the process of a child changing into an adult cannot be called metamorphosis because the basic body structure does not change.)

V. EXEMPLAR QUESTIONS:

- 1) Why are not all animals oviparous? Does vivipary offer any advantage to organisms? (Hint: - All animals are not oviparous because being viviparous offer certain advantages over oviparous animals. Oviparous animals are those animals which reproduce by laying eggs and viviparous animals are those animals which reproduce by giving birth directly to the baby. After laying eggs, mother need to take care of the egg like by hatching it and saving it from

predators. But in case of viviparous baby develop inside the mother's womb and take nutrients from the mother and she does not worry about predators also.)

- 2) Why is it that dogs always produce several puppies whereas human beings usually produce only one child at a time? (Hint: Dogs produce more than one egg at a time. Hence, more puppies are born to them at the same time. Whereas humans usually produce one egg at a time, hence produce only one child at a time)
- 3) Under what circumstances can twins be born in humans? (Hint: Twins are born when two eggs are produced and fertilised by two sperms or when a single zygote splits and forms two embryos)
- 4) List the functions of the jelly cover around frog's egg. (Hint: There are lots of **functions** that the **jelly in frog's egg** can provide. Firstly, it helps to keep the **eggs** together or else they may float with water. Secondly it acts as a protective **covering** so that the **eggs** do not die. Thirdly it protects the **egg** from any kind of injury.)
- 5) Why is young one of a frog called a larva and not a baby frog? (Hint: - Because tadpole is the first stage of incomplete metamorphosis. This incomplete metamorphosis has only **larval** and adult stage and **no** pupal stage so the **young one** is **called larva and not a baby frog.**)
- 6) What is cloning?

Cloning is the production of an exact copy of an animal by means of asexual reproduction. The nucleus of a normal body cell of the animal is transferred into an empty egg cell. The newly formed egg cell is allowed to develop normally. An exact copy of the animal is produced.

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