INDIAN SCHOOL AL WADI AL KABIR

Class: VIII	**Department: SCIENCE 2021 - 22**	**Date: 13.02.2022**
Worksheet No.:10 **With answers**	**Topic: REPRODUCTION IN ANIMALS**	**Note: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I.VERY SHORT ANSWER (1M)

1.Why do animals exhibiting external fertilisation produce a large number of gametes.

(Hint: To ensure better chance of fertilisation)

2.Name the organism which reproduces by budding. (Hint: Hydra)

3.What is the term given to animals which lay eggs in which fertilisation occurs outside the body? (Hint: Oviparous with external fertilisation.)

4.Name the resulting cell which gives rise to a new individual after fertilisation. (Hint: zygote)

5.In the list of animals given below, hen is the odd one out. State the reason for this.

human being, cow, dog, hen (Hint: It is oviparous.)

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

II.ASSERTION AND REASON

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

III.PASSSAGE BASED

Read the passage carefully and answer the questions that follow-

For the continuity of life all living things produce organisms of its own kind. This is called reproduction. Special organ system called the reproductive system is responsible for carrying out the process of reproduction in a living body. Although all living things reproduce they do so by different means. There are two types of Reproduction-Asexual and Sexual reproduction. Asexual reproduction requires one parent while sexual reproduction requires two parents to produce a baby. Asexual reproduction is the simplest form of reproduction and is commonly found in plants and lower animals like starfish, sponges and worms. Most plants and mammals, including human beings reproduce sexually.

a)What is reproduction?
i) Producing fruits
ii) Producing young ones of its own kind
iii) Producing food
iv) All of these

b)What are the two types of reproduction?
i)Budding
ii) Fragmentation
iii) Asexual reproduction
iv) Sexual reproduction

a. i) b. ii) c. ii & iv d. iii &iv

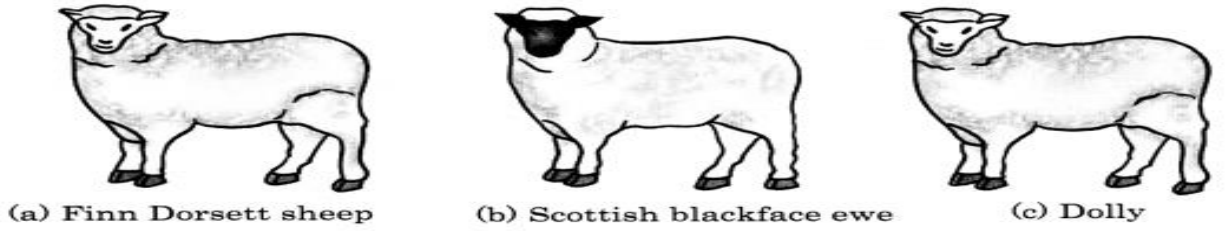
c) Which type of reproduction involves only one parent?
i)Sexual reproduction
ii)Asexual reproduction
iii)Both of these
iv) None of these

d) How do mammals reproduce?
i) By sexual reproduction
ii) By asexual reproduction
iii) By budding
iv) All of these

e) Identify the organism which reproduces asexually.
i)Shark
ii)Sponges
iii)Snake
iv)Snail

IV.CASE STUDY BASED QUESTIONS

Cloning is the production of an exact or a true copy of a cell, any other living part, or a complete organism by asexual reproduction. Cloning of an animal was successfully performed for the first time by Ian Wilmut and his colleagues at the Roslin Institute in Edinburgh, Scotland. They cloned the sheep named Dolly on July 5, 1996.



(a) Finn Dorsett sheep (b) Scottish blackface ewe (c) Dolly

In the process of cloning Dolly, a cell was collected from the mammary gland of a female Finn Dorsett sheep .Meanwhile, an egg was obtained from a Scottish blackface ewe. The nucleus was removed from the egg. Then, the nucleus of the mammary gland cell from the Finn Dorsett sheep was inserted into the egg of the Scottish blackface ewe whose nucleus had been removed. This egg was implanted into the Scottish blackface ewe. The egg developed normally and finally Dolly was born. Cloning of Dolly was a successful attempt. However, many clones often die soon after birth. Sometimes cloning also leads to certain abnormalities among clones. Unfortunately, Dolly died on 14th February, 2003 due to a certain lung disease.

i)What is cloning?
a) Production of exact copy of a cell
b) Producing young ones
c)Producing organs
d)Producing parent cell

ii)Name the first cloned animal.
a) Molly
b) Dolly
c) Polly
d) Ginger

iii)Who performed cloning for the first time?
a) Edward Jenner
b) Ian Wilmut and colleagues
c)Alfred Nobel
d)All of these

iv)State the disadvantage of cloning.
a) Leads to abnormalities
b) Weak parents
c) non-identical babies
d) None of these

V. a) SHORT ANSWER TYPE QUESTIONS (2 M):

1.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.)

2.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.)

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)

VI. b) SHORT ANSWER TYPE QUESTIONS (3 M):

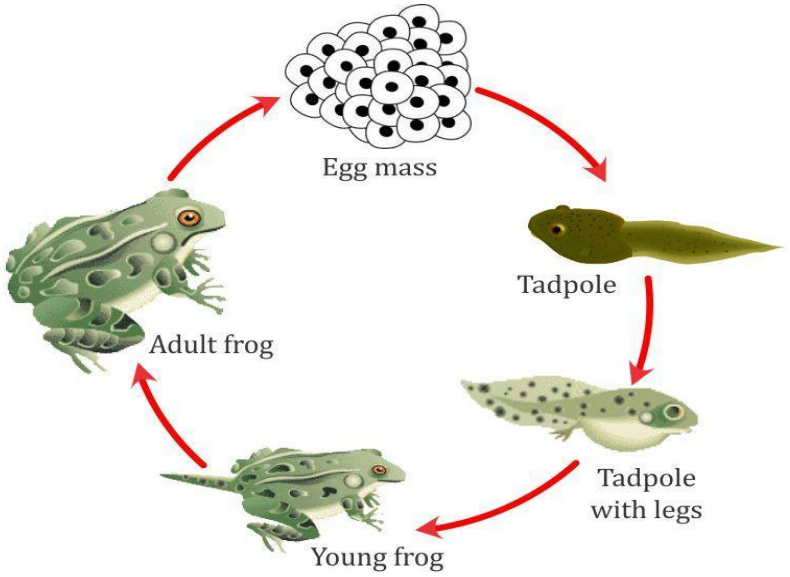
1.How is reproduction in hydra different from that in amoeba? (**Hint:** Hydra reproduces by budding where a bud detaches from the parent which grows into complete organism. Whereas amoeba reproduces by binary fission. The process of reproduction begins by the division of its nucleus into two. This is followed by the division of its body into two.)

2.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.

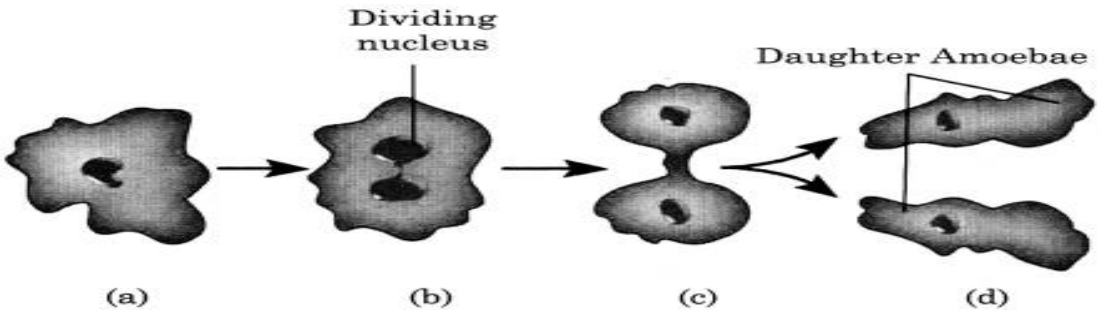


Metamorphosis in frog

3.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.)

4.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



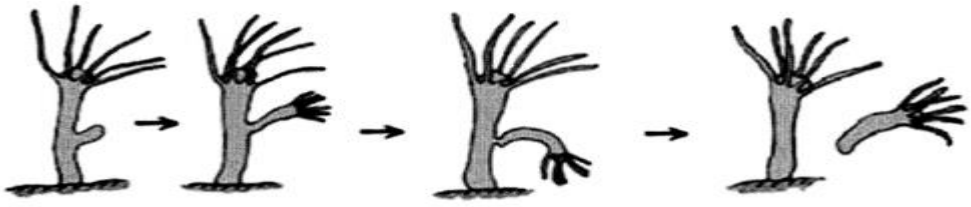
Binary fission in Amoeba

5.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.

6.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.



Budding in Hydra

7.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.)

8.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.)

9.What is cloning?

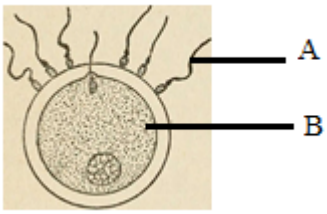
Cloning is the production of an exact copy of an animal by means of asexual reproduction. The nucleus of a normal body cell of the animal is transferred into an empty egg cell. The newly formed egg cell is allowed to develop normally. An exact copy of the animal is produced.

10.Why is young one of a frogs 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**.

VII. LONG ANSWER TYPE QUESTIONS (5 M):

1. a) 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.)

b. Observe the given figure and answer the questions that follow.



b.1) Label A and B- Sperm and egg.

b. 2) Identify the process- fertilisation

b.3) 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.)

c)How would you distinguish between an embryo and a foetus?

(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.)

d) 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.)

2) a) 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.)

b) 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)

c)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)

d) 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.)

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