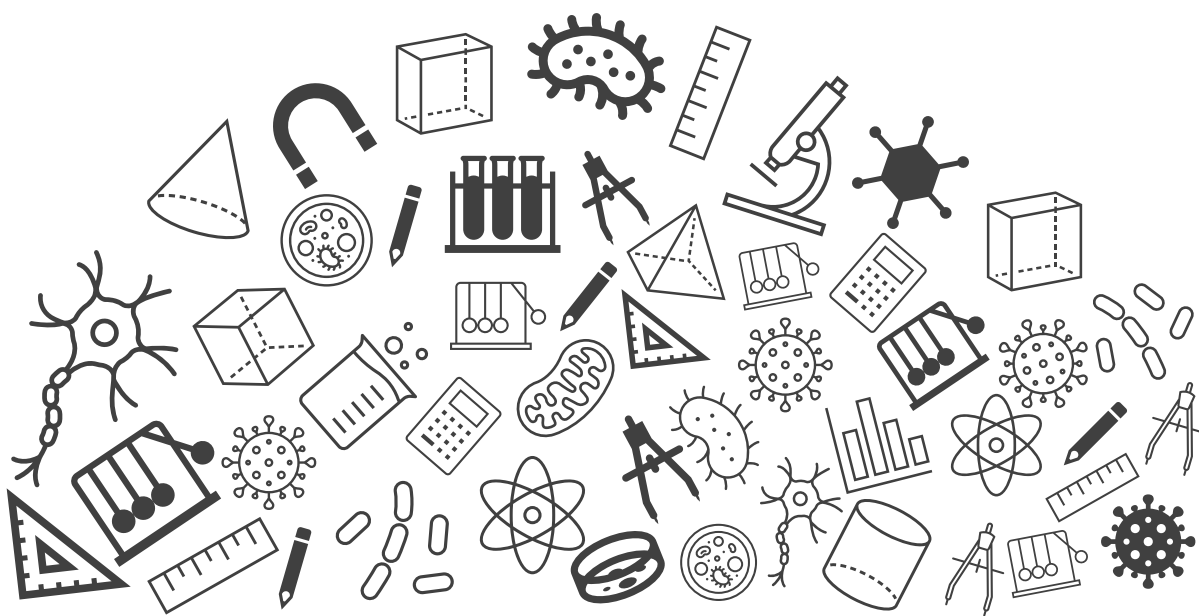




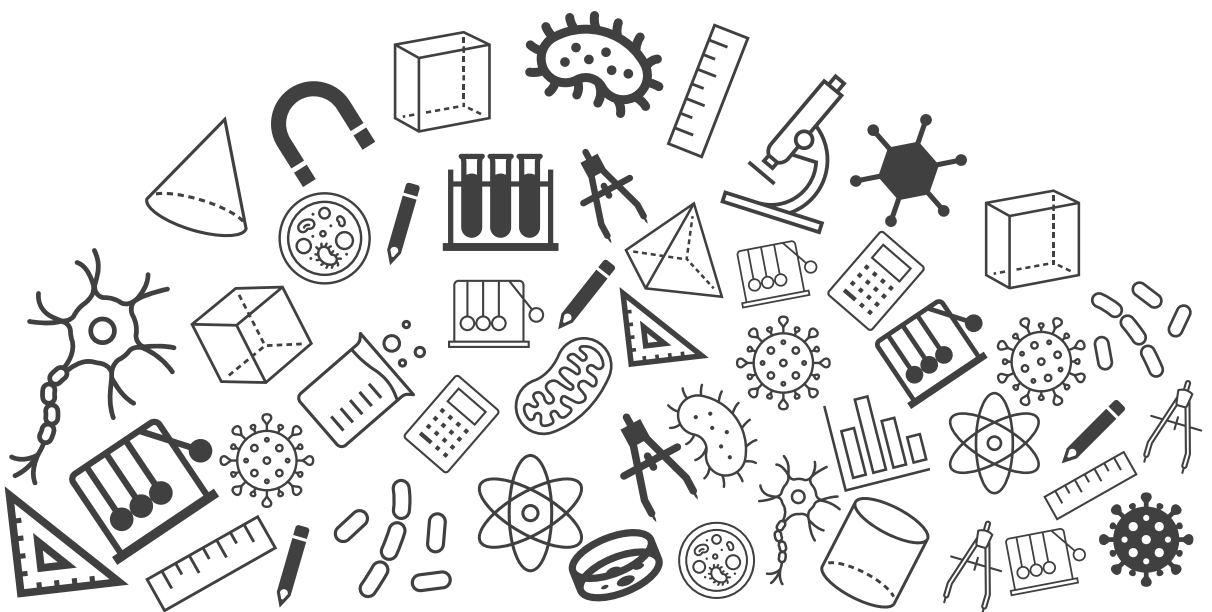
# **Grade 10: Science**

## **Exam Important Questions**





# How do Organisms Reproduce?



## How do Organisms Reproduce?: Asexual and Sexual Reproduction

Topic : Exam Important Questions

1. Explain vegetative propagation with the help of two examples. List any two advantages of vegetative propagation. [3 Marks]

The process in which new plants are grown from the vegetative parts of the plant like roots, shoots and leaves, without involving any reproductive organ, is termed as vegetative propagation.

[1 Mark]

For example, guava trees can be propagated using their roots, and *Bryophyllum* can be propagated by using its leaves.

[1 Mark]

The advantages of vegetative propagation are as follows:

- The plants cultivated are genetically identical to their parents.
- Plants can be cultivated faster as compared to growing them from seeds.

[1 Mark]

2. Why are budding, fragmentation and regeneration all considered as asexual types of reproduction? With neat diagrams explain the process of budding in hydra. [3 Marks]

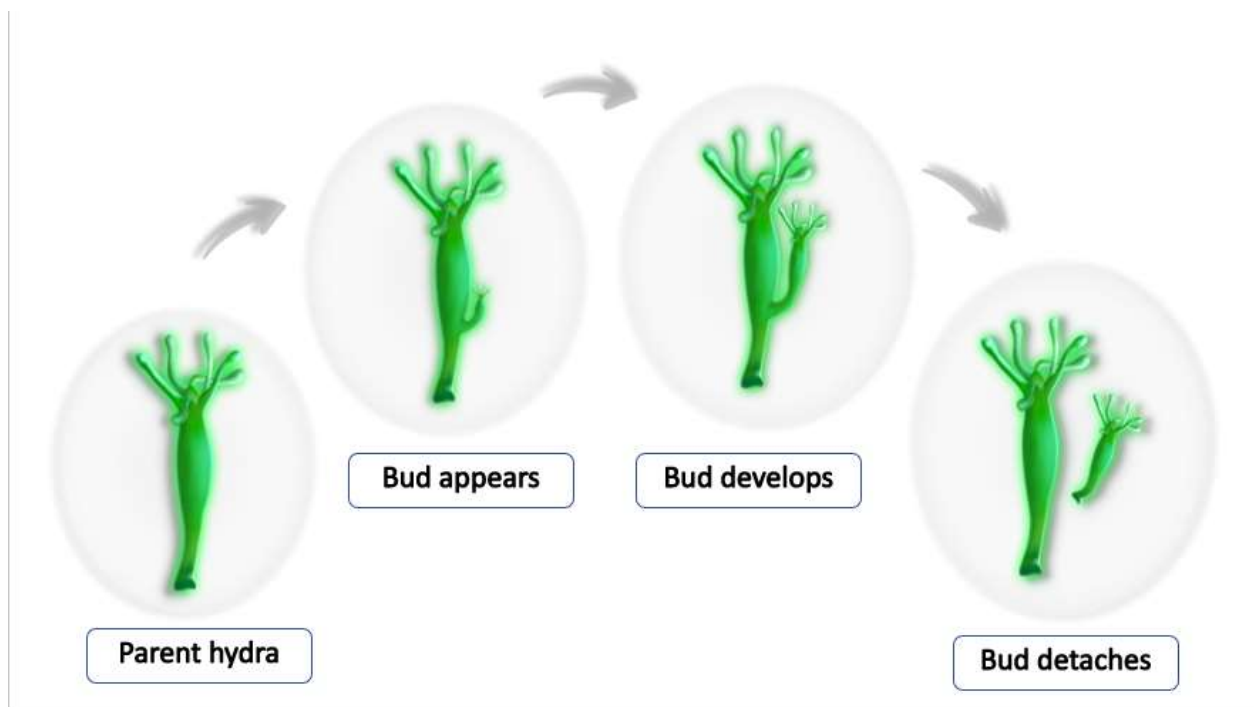
• Budding, fragmentation and regeneration are considered as asexual methods of reproduction because all of them involve only one parent. Like sexual reproduction, two different gametes are not involved in asexual reproduction.

[1 Mark]

Budding in Hydra

- In hydra, a bud develops as an outgrowth due to repeated cell division at one specific site.
- These buds develop into tiny individuals and, when fully mature, detach from the parent body and become new independent individuals.

[2 Marks]



## How do Organisms Reproduce?: Asexual and Sexual Reproduction

3. What are the changes seen in girls and boys at the time of puberty? [5 Marks]

At the time of puberty, secondary sexual characters develop and sexual maturity takes place. This is manifested in the form of many changes in both girls and boys. [1 Mark]

Some of the changes seen in girls at the time of puberty are as follows:

- 1) Breasts enlarge.
- 2) Hips broaden.
- 3) Hairs grow under the armpit and in the pubic area.
- 4) Appearance of acne and pimple.

[0.5 Mark for each point]

Some of the changes seen in boys at the time of puberty are as follows:

- 1) Development of sex organs
- 2) Facial hair growth, hairs grow under the armpit and also in the pubic area.
- 3) Voice becomes hoarse.
- 4) Appearance of acne and pimple.

[0.5 Mark for each point]

4. What is puberty? [1 Mark]

Puberty is the process of physical changes (secondary sexual characteristics) through which a child's body matures and becomes capable of sexual reproduction. [1 Mark]

5. What is placenta? Mention its role during pregnancy? [3 Marks]

The embryo gets nutrition from the mother's blood with the help of a special tissue which looks like a disc-shaped sac called placenta. The placenta is embedded in the uterine wall. [1 Mark]

It contains villi on the embryo's side of the tissue and on the mother's side are blood spaces, which surround the villi. This provides a large surface area for glucose and oxygen to pass from the mother to the embryo. [1 Mark]

The developing embryo will also generate metabolic waste which can be removed by transferring them into the mother's blood through the placenta. [1 Mark]

6. Define fertilisation and implantation.

**Solution:**

1. Fusion of male gamete (sperm) with the female gamete (ovum/egg) to form a zygote is called fertilisation.

[0.5 Marks]

2. The attachment of embryo to the wall of the uterus is called implantation. [0.5 Marks]

## How do Organisms Reproduce?: Asexual and Sexual Reproduction

7. Do sexually transmitted diseases spread only from male to female or female to male? Means, can they pass from same sex like male to male or female to female? How can they be prevented? [3 Marks]

Yes, they tend to pass between the same sex too. [0.5 Marks]

Some STDs transmit not only through sexual intercourse but any accidental exchange of body fluids too. Many STIs are spread through contact with infected body fluids such as blood, vaginal fluids, or semen. They can also be spread through contact with infected skin or mucous membranes, such as sores in the mouth. [1 Mark]

To prevent STDs:

- Avoid having multiple sex partners
- Using protection while having sex
- Avoid sharing towels or underclothing.
- Some STDs, such as hepatitis B or HIV infection, are also transmitted through blood-to-blood contact, through the sharing of needles or equipment to inject drugs, body piercing, or tattoos. Make sure such needles and equipment are sterilised and only used for one person. [1.5 Marks]

8. Differentiate between pollination and fertilisation. (2 marks)

Pollination	Fertilisation
The transfer of pollen grains from the anther to the stigma of a flower. (1 mark)	The fusion of male and the female gamete to form a zygote. (1 mark)

9. Explain self pollination in terms of unisexual flowers. [2 Marks]

**In unisexual flower if the** transfer of pollen grains from the anthers to the stigma takes place in the same plant but from a male flower to a female flower then it will be categorised as **Self-pollination**. [2 Marks]

10. Define double fertilisation. [1 Mark]

In flowering plants, one of the male gametes fertilises the egg resulting in the formation of a zygote and the other unites with two polar nuclei (fusion nucleus) for the formation of an endosperm. This phenomenon is known as double fertilisation. [1 Mark]