

Part - 3
12th Biology

Write the answers of the following :->

1. Why the off spring produced asexually are called clones.
2. Write the different phases of sexual reproduction.
3. Name the plants that shows special flowering.
4. Write the difference between menstrual cycle and oestrous cycle.
5. Write the difference between fertilisation and pollination.
6. Write short note on:
i) Syngamy ii) Pericarp iii) Parthenogenesis.

SEXUAL REPRODUCTION:

- Involves formation of male and female gamete by two individuals of the opposite sex.
 - Offspring produced by fusion of male and female gametes not identical to each other or to the parents.
 - All sexually reproducing organisms share a similar pattern of reproduction.
- In sexual reproduction, fusion of male and female gametes results in offspring that are not identical to parents.

DIFFERENT PHASES IN SEXUAL REPRODUCTION:

a. Juvenile phase - The period between birth and sexual maturity is called juvenile phase. In plants it is known as **vegetative phase**. The end of juvenile/vegetative phase marks the beginning of the reproductive phase.

b. Reproductive phase-

- Some plants show flowering in particular season and some other flowers in all seasons. Some other plants like bamboo species flowers once in life time (after 50-100 years), *Strobilanthus kunthiana* (neelakuranji), flowers once in 12 years.
- The female placental animals exhibit cyclic change in activities ovaries and accessory glands as well as hormone during the reproductive phase.

• In higher plants pollen grains are carrier of male gametes and ovule has eggs. Pollen grains must be transferred from anther to stigma to facilitate **fertilisation**. The transfer of pollen grains from anther to stigma is called **pollination**. Pollination may be self (anther to stigma of same flower) or cross (anther to stigma of different flower).

• Pollen grains germinate on stigma to produce pollen tube that delivers the male gametes near the ovule.

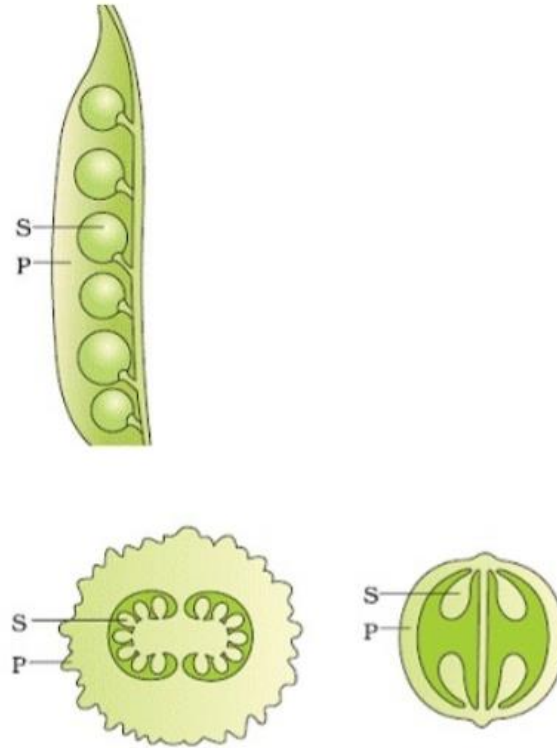
c. Fertilisation – The fusion of male and female gamete is called **fertilization or syngamy**. It results in the formation of diploid zygote.

• The process of development of new organisms without fertilisation of female gametes is called **parthenogenesis**. For example honey bee, rotifers, and lizards *turkey birds*

EXTERNAL FERTILIZATION	INTERNAL FERTILIZATION
Syngamy occurs outside the body of the organism Large numbers of gametes are released in the surrounding medium. Ex. Bony fishes and Amphibians.	Syngamy occurs inside the body of the organism Numbers of ova produced are less, but large numbers of male gametes are released and they travel towards the ovum. Ex. Birds and Mammals.

• In flowering plants, zygote is formed inside the ovule. After fertilisation, sepals, petals and stamens of flower fall off. The zygote develops into embryo and ovules into seeds. The **ovary** develops into **fruits** which develop a thick wall called **pericarp**, protective in function.

• After dispersal, seeds germinate under favorable condition to produce new plants.



A few kinds of fruit showing seeds (S) and protective pericarp (P)

Menstrual cycle

- It occurs in monkeys, apes and human beings.
- Cycle consists of 3 phases-menstrual, proliferative and secretory phase.
- Blood flows in the last few days of the cycle. The broken endometrium is passed out during menstruation.
- Female does not permit copulation during menstrual phase of the cycle.

Oestrous cycle

- It occurs in non primates like cow, sheep, rat, deer, dog, tiger etc.
- It consists of a short period of oestrous or heat. it is 12-24 hours in cow followed by anoestrous or passive period.
- Blood does not flow in this cycle. The broken endometrium is reabsorbed.
- Female permits copulation only during oestrous period.
- Both in plants and animals, hormones are responsible for the transition between different phases of life cycle. Interaction between hormones and environmental factors regulate the reproductive processes.

c. Senescent phase -

- It is the end of reproductive phase.
- Old age ultimately leads to death